



United States
Department of
Agriculture



NRCS

Natural
Resources
Conservation
Service

In cooperation with
Washington State
Department of Natural
Resources and Washington
State University,
Agricultural Research
Center

Soil Survey of Klickitat County Area, Washington



How To Use This Soil Survey

General Soil Map

The [general soil map](#), which is a color map, shows the survey area divided into groups of associated soils called [general soil map units](#). This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

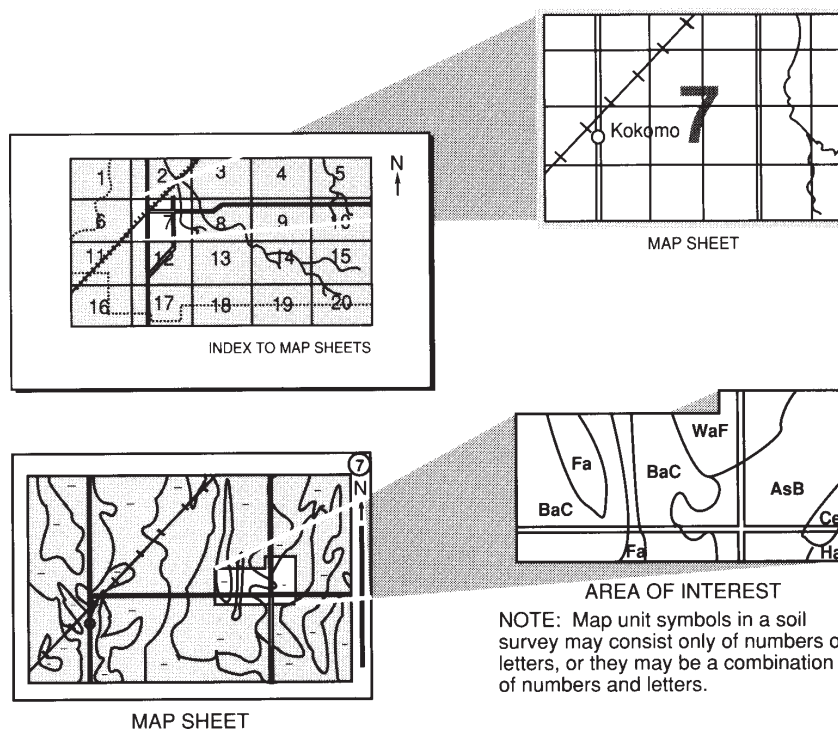
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the [Index to Map Sheets](#). Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the [Contents](#), which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1992. Soil names and descriptions were approved in 1998. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1992. This survey was made cooperatively by the Natural Resources Conservation Service and the Washington Department of Natural Resources and Washington State University, Agricultural Research Center. The survey is part of the technical assistance furnished to the Central Klickitat and Eastern Klickitat Conservation Districts.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

The most current soil information and interpretations for this survey area are available either through the Soil Data Mart or in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The Soil Data Mart is the Natural Resources Conservation Service data storage site for the official soil survey information. The FOTG is linked to the Soil Data Mart; therefore, the same information is available from both sources. Soil survey maps and tabular data can be accessed through the Soil Data Mart at <http://soildatamart.nrcs.usda.gov>. The official soil survey information stored at the Soil Data Mart and this soil survey report are also available through Web Soil Survey at <http://soils.usda.gov/survey>.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or the fact that all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Cover: View of Klickitat Valley, west of Goldendale, Washington. Cropland in foreground is on Goldendale soil. Mount Adams is in background.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at <http://www.nrcs.usda.gov>.

Contents

How To Use This Soil Survey	i
Contents	iii
Foreword	xv
General Nature of the Survey Area	2
History and Development	2
Physiography	2
Geology	5
Climate	7
How This Survey Was Made	8
General Soil Map Units	11
<i>Well Drained Soils that Formed in Colluvium and Residuum Derived from</i>	
<i>Basalt; on Mountains</i>	11
1. Kingtain-McElroy-Timberhead	11
2. Firoke-Panak-Kaiders	12
3. Pird-Andic Haplocryalfs	12
4. Satus	12
5. Berson-Bocker-Klicko	13
<i>Well Drained Soils that Formed in Loess over Bedrock and in Colluvium and</i>	
<i>Residuum Derived from Basalt; on Mountains, Hills, and Plateaus</i>	13
6. Underwood-McGowan-Gunn	13
7. Goldendale-Lorena	14
8. Goldendale-Lorena (North)	14
9. Van Nostern-Morrow-Bakeoven	15
10. Mikkalo-Bakeoven	16
<i>Somewhat Poorly Drained to Excessively Drained Soils that Formed in</i>	
<i>Alluvium, Mudflows, Volcanic Ash Deposits, Eolian and Lacustrine</i>	
<i>Deposits, and Loess, and Rock Outcrop; on Flood Plains and Terraces</i>	16
11. Sagehill-Hezel-Quincy	16
12. Warden	17
13. Chemawa-Hood	18
14. Troutner-Volash-Flotag	18
15. Ewall-Dallesport-Rock outcrop	19
16. Swalecreek-Niva-Konner	20
<i>Well Drained Soils that Formed in Colluvium and Residuum Derived from</i>	
<i>Basalt Mixed with Loess; on Canyons and Hills</i>	21
17. Leidl-Jebe-Dillcourt	21
18. Cheviot-Horseflat-Rockly-Kiona	21
Detailed Soil Map Units	23
1B—Satus stony ashy loam, 5 to 30 percent slopes	24
2C—Satus stony ashy loam, 30 to 60 percent slopes	25
3C—Pird gravelly ashy loam, 30 to 60 percent slopes	26
4B—Grandpon ashy loam, 8 to 30 percent slopes	27
6B—Berson gravelly ashy loam, 5 to 30 percent slopes	28
7B—Bocker-Klicko complex, 2 to 30 percent slopes	29
7C—Sapkin very cobbly loam, 5 to 40 percent slopes	30

8C—Berson gravelly ashy loam, 30 to 45 percent slopes	31
9—Quincy fine sand, 2 to 25 percent slopes, eroded	32
9B—Pird gravelly ashy loam, 8 to 30 percent slopes	33
9C—Quincy-Rock outcrop complex, 25 to 60 percent slopes	34
10—Pits, gravel	35
10B—Andic Haplocryalfs, hilly	35
11—Xerands, steep	36
11A—Xerands, low precipitation, steep south slopes	37
11B—Xerands, low precipitation, steep north slopes	38
11C—Xerands, cool, steep	39
12—Legall cobbly loam, 5 to 30 percent slopes	40
12A—Tekison-Rock outcrop complex, 30 to 65 percent slopes	41
12B—Maydol very stony loam, 5 to 30 percent slopes	42
12C—Legall-Rock outcrop-Rubble land complex, 30 to 65 percent slopes	43
12D—Lyville bouldery loam, 2 to 20 percent slopes	44
12E—Rock outcrop-Rubble land-Legall complex, 30 to 75 percent slopes	45
12F—Lyville-Rock outcrop complex, 30 to 65 percent slopes	46
13B—Itat cobbly loam, 5 to 30 percent slopes	47
13C—Itat cobbly loam, 30 to 45 percent slopes	48
14A—Rockly extremely stony loam, 2 to 15 percent slopes	49
14B—Rockly very gravelly loam, 2 to 30 percent slopes	50
15—Rockly-Rock outcrop complex, 35 to 80 percent slopes	51
16—Sauter gravelly loam, 30 to 75 percent slopes	52
16B—Suta bouldery loam, 40 to 60 percent slopes	53
16C—Sauter-Rock outcrop-Rubble land complex, 30 to 75 percent slopes	54
16E—Rock outcrop-Rubble land-Sauter complex, 30 to 75 percent slopes	56
17A—Presher cobbly loam, 2 to 10 percent slopes	57
17B—Presher stony loam, 8 to 30 percent slopes	58
17D—Quiden stony loam, 2 to 20 percent slopes	59
18A—Kaiders stony loam, 5 to 30 percent slopes	60
18B—Kaiders cobbly loam, 8 to 30 percent slopes	61
18C—Kaiders stony loam, 30 to 45 percent slopes	62
19—Kiakus-Munset-Wahoo complex, 0 to 30 percent slopes	63
20—Nook silt loam, 0 to 5 percent slopes	65
20A—Threecreeks silt loam, 0 to 3 percent slopes	66
21—Rock outcrop-Rubble land complex, very steep	67
22—Fluventic Haploxerolls-Riverwash complex, nearly level	67
23—Gunn loam, 2 to 8 percent slopes	69
23A—Gunn stony loam, 8 to 30 percent slopes	70
23B—Gunn loam, 8 to 30 percent slopes	71
23C—Gunn stony loam, 0 to 8 percent slopes	72
24—Rockly-Itat complex, 8 to 30 percent slopes	73
25—Leidl-Dillcourt-Rock outcrop complex, 30 to 75 percent slopes	74
25A—Leidl extremely cobbly ashy loam, 2 to 30 percent slopes	76
25B—Leidl-Oreoke complex, 30 to 75 percent slopes	77
25C—Leidl-Dillcourt complex, 30 to 75 percent north slopes	78
26—Mazdale very stony ashy loam, 30 to 75 percent slopes	80
26C—Mazdale-Rock outcrop-Rubble land complex, 50 to 90 percent slopes	81
26E—Rock outcrop-Rubble land-Mazdale complex, 50 to 90 percent slopes	82
27B—Yedlick stony ashy sandy loam, 8 to 30 percent slopes	83
28—Trelk ashy loam, 2 to 10 percent slopes	84
30—Rockly-Kiakus complex, 2 to 8 percent slopes	85
30A—Rockly-Lorena complex, 2 to 15 percent slopes	87
30B—Rockly-Lorena complex, extremely stony, 2 to 15 percent slopes	88

32A—Beezee cobbly loam, low precipitation, 30 to 65 percent slopes	90
32B—Beezee cobbly loam, 30 to 65 percent slopes	91
33—Riverwash	92
33A—Haploxerolls-Fluvaquents complex, nearly level	92
36—Jebe gravelly loam, 30 to 75 percent slopes	93
36C—Jebe-Rock outcrop-Rubble land complex, 50 to 90 percent slopes	94
39A—Hyprairie silt loam, 2 to 5 percent slopes	96
39B—Hyprairie silt loam, 5 to 10 percent slopes	97
39C—Hyprairie silt loam, 10 to 15 percent slopes	98
39D—Hyprairie silt loam, 15 to 30 percent slopes	99
41—Oreoke-Legall complex, 30 to 75 percent slopes	100
42—Oreoke-Beezee complex, 30 to 75 percent slopes	101
43—Oreoke-Colockum complex, 30 to 60 percent slopes	103
49A—Kiakus silt loam, 2 to 5 percent slopes	104
49B—Kiakus silt loam, 5 to 10 percent slopes	105
49C—Kiakus silt loam, 10 to 15 percent slopes	106
49D—Kiakus silt loam, 15 to 30 percent slopes	107
49E—Kiakus-Rockly complex, 2 to 15 percent slopes	108
55—Firoke ashy fine sandy loam, 10 to 40 percent slopes, stony	110
55A—Kingtain stony ashy loam, 8 to 45 percent slopes	111
57—Firoke ashy fine sandy loam, 5 to 30 percent slopes, stony	112
59B—Bercumb cobbly ashy loam, 5 to 30 percent slopes	113
59C—Bercumb cobbly ashy loam, 30 to 65 percent slopes	114
59D—Bercumb cobbly ashy loam, 30 to 75 percent north slopes	115
61—Grayland silty clay loam, 0 to 1 percent slopes	116
63—Fanal ashy sandy loam, 2 to 8 percent slopes	117
65—Leidl extremely cobbly ashy loam, 30 to 75 percent slopes	118
65B—Dystroxerepts, very steep	119
66—Flotag gravelly ashy sandy loam, 0 to 2 percent slopes	120
68—Fluvaquentic Endoaquolls, nearly level	121
69—Goldendale silt loam, basalt substratum, 2 to 5 percent slopes	121
69A—Goldendale silt loam, basalt substratum, 5 to 10 percent slopes	123
69B—Goldendale silt loam, basalt substratum, 10 to 15 percent slopes	124
69C—Goldendale silt loam, basalt substratum, 15 to 30 percent slopes	125
72—Aqualfs, nearly level	126
73A—Dalig loam, 2 to 8 percent slopes	127
73B—Dalig loam, 8 to 15 percent slopes	128
73C—Dalig loam, 15 to 30 percent slopes	129
74A—Tigit ashy loam, 2 to 8 percent slopes	130
74B—Tigit ashy loam, 8 to 15 percent slopes	131
74C—Tigit ashy loam, 15 to 30 percent slopes	132
76—Underwood ashy loam, 2 to 8 percent slopes	133
76A—Underwood ashy loam, 8 to 15 percent slopes	134
76B—Underwood ashy loam, 15 to 30 percent slopes	135
76C—Underwood gravelly ashy loam, 30 to 50 percent slopes	136
77—McGowan ashy loam, 8 to 15 percent slopes	136
77A—McGowan ashy loam, 2 to 8 percent slopes	137
80—Troutlake ashy loam, 1 to 5 percent slopes	138
81—Sugarbowl ashy loam, 5 to 30 percent slopes	139
82B—Kingtain gravelly ashy loam, 8 to 30 percent slopes	140
82D—Kingtain cobbly ashy loam, 30 to 65 percent slopes	141
82E—Kingtain-Rock outcrop complex, 30 to 75 percent slopes	142
83—Volash ashy loam, 2 to 15 percent slopes	144
84—Trouter stony ashy loam, 2 to 8 percent slopes	145

84A—Trout-Rock outcrop complex, 2 to 15 percent slopes	146
86A—Chemawa ashy loam, 2 to 8 percent slopes	147
86B—Chemawa ashy loam, 8 to 15 percent slopes	148
86C—Chemawa ashy loam, 15 to 30 percent slopes	149
86D—Chemawa gravelly ashy loam, 30 to 45 percent slopes	150
87A—Eagreek paragravelly loam, 15 to 50 percent slopes	151
88A—Timberhead gravelly ashy loam, 5 to 30 percent slopes	151
88B—Timberhead gravelly ashy loam, 30 to 65 percent slopes	152
89—McElroy gravelly ashy loam, 30 to 65 percent slopes	153
89B—McElroy-Rock outcrop complex, 50 to 90 percent slopes	154
90—Hood loam, 3 to 8 percent slopes	155
90A—Hood loam, 8 to 15 percent slopes	156
90B—Hood loam, 15 to 30 percent slopes	157
90C—Hood loam, 30 to 65 percent slopes	158
92—Husum gravelly ashy loam, 0 to 5 percent slopes	159
92A—Husum gravelly ashy loam, 5 to 15 percent slopes	160
92B—Husum gravelly ashy loam, nonflooded, 0 to 5 percent slopes	161
93—Goldendale silt loam, 2 to 5 percent slopes	162
93A—Goldendale silt loam, 5 to 10 percent slopes	163
93B—Goldendale silt loam, 10 to 15 percent slopes	164
93C—Goldendale silt loam, 15 to 30 percent slopes	165
93D—Goldendale silt loam, 30 to 65 percent slopes	166
94—Lorena silt loam, 2 to 5 percent slopes	167
94A—Lorena silt loam, 5 to 10 percent slopes	168
94B—Lorena silt loam, 10 to 15 percent slopes	169
94C—Lorena silt loam, 15 to 30 percent slopes	170
94E—Lorena-Rockly complex, 15 to 30 percent slopes	171
95—Konert silt loam, drained, 0 to 2 percent slopes	172
95A—Konert silt loam, 0 to 2 percent slopes	173
96—Blockhouse silt loam, 0 to 5 percent slopes	174
97—Munset stony silt loam, 0 to 5 percent slopes	175
97A—Setnum silt loam, 0 to 3 percent slopes	176
97B—Blockhouse-Munset complex, 5 to 10 percent slopes	177
99—Dallesport fine sandy loam, 0 to 8 percent slopes	179
100—Dallesport very cobbly fine sandy loam, 0 to 8 percent slopes	180
101—Dallesport very cobbly fine sandy loam, 8 to 15 percent slopes	181
102—Dallesport gravelly fine sandy loam, 15 to 30 percent slopes	182
103—Dallesport-Rock outcrop complex, 0 to 15 percent slopes	183
104—Dallesport-Rock outcrop complex, 15 to 30 percent slopes	184
105—Ewall loamy sand, 0 to 8 percent slopes	185
106—Ewall loamy sand, 8 to 15 percent slopes	186
107—Ewall loamy sand, 15 to 30 percent slopes	187
108—Ewall-Rock outcrop complex, 0 to 15 percent slopes	188
109—Ewall-Rock outcrop complex, 15 to 30 percent slopes	189
113B—Tekison stony loam, 5 to 30 percent slopes	190
113C—Tekison stony loam, 30 to 45 percent slopes	191
115—Aquolls, nearly level	192
116—Aquolls-Rock outcrop complex, nearly level	193
120—Rock outcrop-Haploxerolls complex, hilly	194
121—Rock outcrop-Haploxerolls complex, steep	195
122—Rock outcrop-Haploxerolls complex, very steep	196
123A—Galiente loam, 2 to 8 percent slopes	197
125—Scooteney silt loam, 2 to 5 percent slopes	198
127—Scooteney cobbly silt loam, 0 to 5 percent slopes	199

130—Oxy silt loam, 0 to 2 percent slopes	200
131—Onyx silt loam, 0 to 2 percent slopes	201
132—Esquatzel silt loam, 2 to 5 percent slopes	202
136—Bickleton silt loam, 2 to 5 percent slopes	203
137—Bickleton silt loam, 5 to 15 percent slopes	204
140—Broadax silt loam, 2 to 5 percent slopes	205
141—Broadax silt loam, 5 to 10 percent slopes	206
150—Morrow silt loam, 2 to 5 percent slopes	207
151—Morrow silt loam, 5 to 10 percent slopes	208
155—Morrow-Bakeoven complex, 2 to 15 percent slopes	209
159B—Panak ashy loam, 5 to 30 percent slopes	210
159C—Panak cobbly ashy loam, 30 to 50 percent slopes	211
159D—Panak cobbly ashy loam, 30 to 65 percent north slopes	212
161—Van Nostern silt loam, 5 to 10 percent north slopes	213
181—Umapine silt loam, 0 to 2 percent slopes	214
187—Cleman very fine sandy loam, 2 to 5 percent slopes	215
190—Weirman fine sandy loam, 0 to 5 percent slopes	216
193—Swalecreek silt loam, 0 to 2 percent slopes	217
194—Swalecreek silt loam, 2 to 5 percent slopes	218
195—Swalecreek-Niva complex, 5 to 10 percent slopes	219
196—Mondovi silt loam, 0 to 2 percent slopes	221
200—Malaga gravelly fine sandy loam, 0 to 15 percent slopes	222
211—Hezel loamy fine sand, 0 to 2 percent slopes	223
212—Hezel loamy fine sand, 2 to 15 percent slopes	224
213—Hezel loamy fine sand, 15 to 30 percent slopes	225
225—Kiona stony very fine sandy loam, 5 to 30 percent slopes	226
226—Kiona-Rock outcrop complex, 30 to 65 percent slopes	227
227—Cheviot very stony silt loam, 5 to 30 percent slopes	228
228—Borfin cobbly clay loam, 30 to 50 percent slopes, stony	229
229—Cheviot-Wipple-Rock outcrop complex, 30 to 65 percent slopes	230
230—Cheviot-Ralls-Rock outcrop complex, 30 to 65 percent slopes	231
240—Niva silt loam, 5 to 15 percent slopes	233
241—Niva silt loam, 15 to 30 percent north slopes	234
242—Niva silt loam, 15 to 30 percent south slopes	235
250—Van Nostern silt loam, 2 to 5 percent slopes	236
251—Van Nostern silt loam, 5 to 10 percent slopes	237
255—Van Nostern-Bakeoven complex, 2 to 15 percent slopes	238
266—Van Nostern-Bakeoven complex, 15 to 30 percent slopes	239
274—Prosser silt loam, 2 to 5 percent slopes	240
275—Prosser silt loam, 5 to 15 percent slopes	241
277—Prosser-Bakeoven complex, 2 to 15 percent slopes	242
280—Quincy loamy sand, 0 to 2 percent slopes	244
281—Quincy loamy sand, 2 to 25 percent slopes	245
285—Quinton fine sand, 2 to 10 percent slopes	246
290—Koehler loamy fine sand, 0 to 10 percent slopes	246
296—Swalecreek silt loam, 10 to 15 percent slopes	248
297—Swalecreek silt loam, 15 to 30 percent slopes	249
298—Swalecreek-Rockly complex, 15 to 30 percent slopes	250
299—Swalecreek-Rockly complex, 30 to 60 percent slopes	251
304—Ritzville silt loam, 5 to 15 percent slopes	252
305—Ritzville silt loam, 15 to 30 percent slopes	253
306—Ritzville silt loam, 30 to 60 percent slopes	254
308—Ralls stony silt loam, 30 to 60 percent slopes	255
317—Reilloc-Sienna complex, 2 to 15 percent slopes	256

318—Sienna very gravelly loam, 15 to 30 percent slopes	258
329—Badge very stony silt loam, 15 to 45 percent south slopes	259
330—Badge very stony silt loam, 15 to 45 percent north slopes	260
343—Shano silt loam, 5 to 10 percent slopes	261
346—Shano silt loam, 2 to 5 percent slopes	262
347—Shano silt loam, 10 to 15 percent slopes	263
348—Shano silt loam, 15 to 30 percent slopes	264
350—Willis silt loam, 2 to 5 percent slopes	265
351—Willis silt loam, 5 to 10 percent slopes	266
352—Willis silt loam, 10 to 15 percent slopes	266
353—Willis silt loam, 15 to 30 percent slopes	267
360—Selah silt loam, 2 to 5 percent slopes	268
361—Selah silt loam, 5 to 10 percent slopes	269
362—Selah silt loam, 10 to 15 percent slopes	270
365—Selah-Bakeoven complex, 2 to 15 percent slopes	271
374—Thiessen very stony silt loam, 15 to 45 percent slopes	273
375—Licksillet cobbly silt loam, 15 to 30 percent slopes	274
376—Licksillet silt loam, 2 to 15 percent slopes	275
377—Licksillet cobbly silt loam, 2 to 15 percent slopes	276
378—Starbuck-Rock outcrop complex, 0 to 45 percent slopes	277
379—Rock outcrop-Rubble land-Cheviot complex, 45 to 90 percent slopes	278
380—Cheviot-Licksillet-Rock outcrop complex, 45 to 90 percent slopes	279
381—Ralls-Cheviot-Licksillet complex, 45 to 90 percent slopes	280
390—Renslow-Ralls-Wipple complex, 2 to 15 percent slopes	282
391—Broadax-Colockum-Tronsen complex, 5 to 15 percent slopes	285
394—Cheviot-Ralls-Wipple complex, 2 to 15 percent slopes	287
395—Cheviot-Ralls-Wipple complex, 15 to 30 percent south slopes	289
396—Renslow-Ralls-Wipple complex, 15 to 30 percent north slopes	291
420—Endicott-Moxee complex, 2 to 5 percent slopes	293
421—Endicott-Moxee complex, 5 to 10 percent slopes	295
422—Endicott-Moxee complex, 10 to 15 percent slopes	296
423—Endicott silt loam, 2 to 5 percent slopes	297
424—Endicott silt loam, 5 to 10 percent slopes	298
425—Endicott silt loam, 10 to 15 percent slopes	299
433—Warden silt loam, 5 to 10 percent slopes	300
435—Warden silt loam, 2 to 5 percent slopes	301
436—Warden silt loam, 0 to 2 percent slopes	302
437—Warden silt loam, 10 to 15 percent slopes	303
438—Warden silt loam, 15 to 30 percent slopes	304
440—Kahlotus silt loam, 2 to 5 percent slopes	305
441—Kahlotus silt loam, 5 to 10 percent slopes	306
442—Kahlotus silt loam, 10 to 15 percent slopes	307
443—Kahlotus silt loam, 15 to 30 percent slopes	308
444—Kahlotus-Kennewick complex, 30 to 60 percent slopes	309
445—Kahlotus-Rock outcrop complex, 2 to 15 percent slopes	310
450—Kennewick silt loam, 2 to 5 percent slopes	311
451—Kennewick silt loam, 5 to 10 percent slopes	312
453—Kennewick silt loam, 15 to 30 percent slopes	313
485—Bakeoven very cobbly loam, 15 to 30 percent slopes	314
487—Bakeoven very cobbly loam, 0 to 15 percent slopes	315
488—Camaspatch very cobbly silt loam, 15 to 45 percent slopes	316
489—Rock Creek stony silt loam, 0 to 30 percent slopes	317
495—Konner silt loam, 0 to 3 percent slopes	318
533—Sagehill fine sandy loam, 5 to 10 percent slopes	319

534—Sagehill fine sandy loam, 0 to 2 percent slopes	320
535—Sagehill-Kiona complex, 2 to 30 percent slopes	321
536—Sagehill fine sandy loam, 2 to 5 percent slopes	323
537—Sagehill fine sandy loam, 10 to 15 percent slopes	324
538—Sagehill fine sandy loam, 15 to 30 percent slopes	325
540—Walla Walla silt loam, 0 to 5 percent slopes	326
541—Walla Walla silt loam, 5 to 10 percent slopes	327
542—Walla Walla silt loam, 10 to 15 percent slopes	328
543—Walla Walla silt loam, 15 to 30 percent slopes	329
550—Walla Walla silt loam, cemented substratum, 0 to 5 percent slopes	330
551—Walla Walla silt loam, cemented substratum, 5 to 10 percent slopes	331
552—Walla Walla silt loam, cemented substratum, 10 to 15 percent slopes	332
555—Walla Walla very fine sandy loam, 0 to 5 percent slopes	333
556—Walla Walla very fine sandy loam, 5 to 10 percent slopes	334
557—Walla Walla very fine sandy loam, 10 to 15 percent slopes	335
558—Walla Walla very fine sandy loam, 15 to 30 percent slopes	336
560—Olex silt loam, 15 to 30 percent slopes	337
561—Olex very cobbly silt loam, 30 to 65 percent slopes	338
562—Olex silt loam, 2 to 15 percent slopes	339
570—Bolicker silt loam, 15 to 30 percent slopes	340
571—Bolicker silt loam, 30 to 40 percent slopes	340
580—Benwy silt loam, 2 to 5 percent slopes	341
581—Benwy silt loam, 5 to 10 percent slopes	342
582—Benwy silt loam, 10 to 20 percent north slopes	343
583—Benwy silt loam, cemented substratum, 10 to 20 percent south slopes	345
584—Mikkalo-Bakeoven complex, 15 to 30 percent slopes	346
585—Mikkalo-Bakeoven complex, 2 to 15 percent slopes	347
586—Mikkalo silt loam, 2 to 5 percent slopes	349
587—Mikkalo silt loam, 5 to 10 percent slopes	350
588—Mikkalo silt loam, 15 to 30 percent slopes	351
589—Mikkalo silt loam, 10 to 15 percent slopes	352
590—Mikkalo fine sandy loam, 0 to 2 percent slopes	353
591—Licksillet-Mikkalo complex, 0 to 2 percent slopes	354
600—Meloza clay, 2 to 15 percent slopes	355
670—Wato silt loam, 5 to 10 percent slopes	356
671—Wato silt loam, 2 to 5 percent slopes	357
672—Wato silt loam, 10 to 15 percent slopes	358
681—Nansene silt loam, 5 to 10 percent slopes	359
682—Nansene silt loam, 10 to 15 percent slopes	360
700—Urban land	361
711—Pits, quarry	361
721—Rock outcrop-Rubble land-Haploxerolls complex, very steep	361
724C—Haploxerolls-Rubble land complex, steep	362
724D—Haploxerolls-Rubble land complex, very steep	363
725—Cauley silt loam, 5 to 10 percent slopes	364
726—Cauley silt loam, 10 to 15 percent slopes	365
727—Cauley silt loam, 15 to 30 percent slopes	366
729—Cauley silt loam, 30 to 65 percent slopes	367
730—Stacker-Horseflat complex, 2 to 15 percent slopes	368
731—Stacker-Horseflat complex, 15 to 30 percent slopes	369
732—Stacker-Horseflat complex, 30 to 65 percent slopes	371
737—Wind River fine sandy loam, 5 to 10 percent slopes	372
742—Gwin cobbly silt loam, 30 to 65 percent slopes	373
751—Lorena-Rockly complex, 30 to 65 percent slopes	374

752—Lorena-Rockly complex, 2 to 15 percent slopes	375
756—Walla Walla silt loam, 2 to 15 percent slopes	377
758—Walla Walla silt loam, 30 to 65 percent slopes	378
761—Balake very gravelly loam, 5 to 10 percent slopes	379
762—Balake very gravelly loam, 10 to 15 percent slopes	380
763—Balake very gravelly loam, 15 to 30 percent slopes	381
764—Balake very gravelly loam, 5 to 30 percent slopes	382
765—Balake very gravelly loam, 30 to 65 percent slopes	383
766—Gunn-Galiente complex, 5 to 30 percent slopes	384
767—Gunn-Galiente complex, 30 to 65 percent slopes	385
768—Gunn-Galiente complex, 15 to 30 percent slopes	386
769—Aquic Haploxerolls, protected, nearly level	388
775—Horseflat cobbly silt loam, 2 to 15 percent slopes	389
776—Horseflat cobbly silt loam, 15 to 30 percent slopes	390
777—Horseflat cobbly silt loam, 30 to 65 percent slopes	391
781—Gunn loam, 30 to 65 percent slopes	392
782—Gunn loam, 5 to 30 percent north slopes	393
783—Gunn loam, 30 to 65 percent north slopes	394
790—Fisherhill silt loam, 2 to 5 percent slopes	395
791—Fisherhill silt loam, 5 to 10 percent slopes	396
792—Fisherhill silt loam, 10 to 15 percent slopes	397
793—Goldendale silt loam, 2 to 15 percent slopes	398
796—Lorena silt loam, 2 to 15 percent slopes	399
798—Dalig loam, 5 to 30 percent slopes	400
799—Dalig loam, 30 to 65 percent slopes	401
890—Stacker silt loam, 2 to 5 percent slopes	402
891—Stacker silt loam, 5 to 10 percent slopes	403
893—Fisherhill silt loam, 2 to 15 percent slopes	404
894—Fisherhill silt loam, 15 to 30 percent slopes	405
895—Fisherhill silt loam, 30 to 65 percent slopes	406
896—Stacker silt loam, 2 to 15 percent slopes	406
897—Stacker silt loam, 15 to 30 percent slopes	407
898—Stacker silt loam, 30 to 65 percent slopes	408
899—Stacker silt loam, 10 to 15 percent slopes	409
930A—Rockly-Lorena complex, 2 to 15 percent north slopes	410
930B—Rockly-Lorena complex, 15 to 30 percent north slopes	412
950—Lorena-Rockly complex, 15 to 30 percent north slopes	413
951—Lorena-Rockly complex, 30 to 65 percent north slopes	415
952—Lorena-Rockly complex, 2 to 15 percent north slopes	416
969—Goldendale silt loam, basalt substratum, 2 to 5 percent north slopes	418
969A—Goldendale silt loam, basalt substratum, 5 to 10 percent north slopes	419
969B—Goldendale silt loam, basalt substratum, 10 to 15 percent north slopes	420
969C—Goldendale silt loam, basalt substratum, 15 to 30 percent north slopes	421
970—Oreoke-Tronsen complex, 15 to 30 percent slopes	422
971—Oreoke-Tronsen complex, 30 to 60 percent slopes	424
987—Asotin silt loam, 5 to 10 percent slopes	425
988—Asotin silt loam, 15 to 30 percent slopes	426
989—Asotin silt loam, 10 to 15 percent slopes	427
990—Goldendale-Lorena-Rockly complex, 2 to 30 percent north slopes	428
991—Goldendale-Lorena-Rockly complex, 30 to 65 percent north slopes	430
993A—Goldendale silt loam, 5 to 10 percent north slopes	432

993B—Goldendale silt loam, 10 to 15 percent north slopes	433
993C—Goldendale silt loam, 15 to 30 percent north slopes	434
993D—Goldendale silt loam, 30 to 65 percent north slopes	435
994—Lorena silt loam, 2 to 5 percent north slopes	436
994A—Lorena silt loam, 5 to 10 percent north slopes	437
994B—Lorena silt loam, 10 to 15 percent north slopes	438
994C—Lorena silt loam, 15 to 30 percent north slopes	439
995—Hyprairie silt loam, dry, 2 to 30 percent slopes	440
996—Hyprairie silt loam, dry, 30 to 65 percent slopes	441
1000—Tekison silt loam, 30 to 60 percent slopes	442
1010—Colockum-Cheviot complex, 15 to 30 percent slopes	443
1011—Colockum-Cheviot complex, 30 to 60 percent slopes	444
1012—Goldendale-Tekison complex, 2 to 15 percent slopes	446
1013—Goldendale-Tekison complex, 15 to 30 percent slopes	447
1014—Tekison-Goldendale complex, 30 to 65 percent slopes	449
1015—Rockly-Tekison-Rock outcrop complex, 5 to 30 percent slopes	450
1016—Goldendale-Rockly complex, 30 to 65 percent slopes	452
1017—Tronsen-Goldendale-Horseflat complex, 15 to 30 percent slopes	453
1018—Tronsen-Goodnoe-Horseflat complex, 30 to 65 percent slopes	455
1030—Stacker-Swalecreek-Horseflat complex, 2 to 15 percent slopes	457
1031—Stacker-Swalecreek-Horseflat complex, 15 to 30 percent slopes	459
1032—Goodnoe-Swalecreek-Horseflat complex, 30 to 65 percent slopes	461
1042—Cheviot-Tronsen complex, 15 to 30 percent slopes	463
1075—Walla Walla-Goodnoe complex, 30 to 65 percent slopes	464
1093—Goldendale-Lorena complex, 15 to 30 percent slopes	466
1096—Oreoke-Goldendale-Rock outcrop complex, 25 to 50 percent slopes	467
1097—Tekison-Lorena-Rockly complex, 30 to 65 percent slopes	469
2961—Renslow silt loam, 0 to 5 percent slopes	471
2971—Renslow silt loam, 5 to 15 percent slopes	472
3061—Ritzville silt loam, basalt substratum, 2 to 5 percent slopes	473
3071—Ritzville silt loam, basalt substratum, 5 to 15 percent slopes	474
3081—Ritzville silt loam, basalt substratum, 15 to 30 percent slopes	475
D—Dam	476
W—Water	476
Use and Management of the Soils	477
Soil Survey Information on the Internet	477
Crops and Pasture	479
Land Capability Classification	480
Prime and Statewide Important Farmland	481
Rangeland and Grazeable Woodland	482
Forestland	485
Wildlife Habitat	486
Hydric Soils	487
Soil Properties	491
Engineering Properties	491
Physical Properties	492
Chemical Properties	494
Water Features	494
Soil Features	496
Classification of the Soils	497
Taxonomic Units and Their Morphology	497
Andic Haplocryalfs	498
Aqualfs	499
Aquic Haploxerolls	500

Aquolls	502
Asotin Series	503
Badge Series	504
Bakeoven Series	505
Balake Series	506
Beezee Series	507
Benwy Series	508
Bercumb Series	510
Berson Series	511
Bickleton Series	513
Blockhouse Series	514
Bocker Series	515
Bolicker Series	516
Borfin Series	517
Broadax Series	518
Camaspatch Series	520
Cauley Series	521
Chemawa Series	522
Cheviot Series	523
Cleman Series	524
Colockum Series	526
Dalig Series	527
Dallesport Series	528
Dillcourt Series	530
Dystroxerepts	531
Eagreek Series	532
Endicott Series	533
Esquatzel Series	534
Ewall Series	535
Fanal Series	536
Firoke Series	537
Fisherhill Series	539
Flotag Series	540
Fluvaquentic Endoaquolls	541
Fluvaquents	543
Fluventic Haploxerolls	544
Galiente Series	545
Goldendale Series	546
Goodnoe Series	547
Grandpon Series	549
Grayland Series	550
Gunn Series	552
Gwin Series	553
Haploxerolls	554
Hezel Series	555
Hood Series	556
Horseflat Series	557
Husum Series	558
Hyprairie Series	559
Itat Series	560
Jebe Series	562
Kahlotus Series	563
Kaiders Series	564
Kennewick Series	565

Kiakus Series	566
Kingtain Series	567
Kiona Series	569
Klicko Series	570
Koehler Series	571
Konert Series	573
Konner Series	574
Legall Series	575
Leidl Series	576
Lickskillet Series	577
Lorena Series	578
Lyville Series	580
Malaga Series	581
Maydol Series	582
Mazdale Series	583
McElroy Series	584
McGowan Series	586
Meloza Series	587
Mikkalo Series	589
Mondovi Series	590
Morrow Series	591
Moxee Series	592
Munset Series	593
Nansene Series	594
Niva Series	596
Nook Series	597
Olex Series	598
Onyx Series	599
Oreoke Series	600
Oxy Series	601
Panak Series	602
Pird Series	603
Presher Series	605
Prosser Series	606
Quiden Series	607
Quincy Series	608
Quinton Series	609
Ralls Series	610
Reilloc Series	611
Renslow Series	612
Ritzville Series	613
Rock Creek Series	615
Rockly Series	616
Sagehill Series	616
Sapkin Series	618
Satus Series	619
Sauter Series	620
Scooteney Series	621
Selah Series	622
Setnum Series	624
Shano Series	625
Sienna Series	626
Stacker Series	627
Starbuck Series	628

Sugarbowl Series	629
Suta Series	630
Swalecreek Series	631
Tekison Series	632
Thiessen Series	634
Threecreeks Series	635
Tigit Series	636
Timberhead Series	638
Trelk Series	639
Tronsen Series	640
Trouter Series	641
Troutlake Series	642
Umapine Series	643
Underwood Series	645
Van Nostern Series	646
Volash Series	647
Wahoo Series	648
Walla Walla Series	649
Warden Series	650
Wato Series	651
Weirman Series	653
Willis Series	654
Wind River Series	655
Wipple Series	656
Xerands	657
Yedlick Series	658
Formation of the Soils	661
Parent Material	661
Climate	663
Topography	665
Living Organisms	665
Time	666
References	667
Glossary	669
Tables	687
Table 1.—Acreage and Proportionate Extent of the Soils	688
Table 2.—Land Capability Classification	695
Table 3.—Prime and Statewide Important Farmland	721
Table 4.—Hydric Soils	726
Table 5.—Engineering Properties	730
Table 6.—Physical Properties of the Soils	822
Table 7.—Chemical Properties of the Soils	883
Table 8.—Water Features	929
Table 9.—Soil Features	982
Table 10.—Taxonomic Classification of the Soils	1019

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Roylene Rides at the Door
State Conservationist
Natural Resources Conservation Service



Location of Klickitat County Area in Washington.

Soil Survey of Klickitat County Area, Washington

By Edward Brincken, Natural Resources Conservation Service

Fieldwork by Edward Brincken, Edward Haagen, Kenneth D. Vogt, Terry L. Aho, Mike Schramm, and Alan Goldin, Natural Resources Conservation Service; Louis Halloin, Jim Cunningham, and Paul Gregory, Washington State Department of Natural Resources; and Dale Olson, Robert Osterman, and Jerry Coleman, contract mapping

Forestry fieldwork by Ron Peyton, Natural Resources Conservation Service, and Andy Card and Terry Graham, Washington State Department of Natural Resources

Range fieldwork by David R. Guenther, Rick Pudney, and Jodi Hastings, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
Washington Department of Natural Resources and Washington State University, Agricultural Research Center

Klickitat County Area is in the south-central part of Washington. The Columbia River lies along the southern margin of the area. The northern boundary begins on the southeastern flanks of Mount Adams, extends over the Simcoe Mountains, and follows the crest of Horse Heaven Hills. Elevation ranges from about 70 feet along the Columbia River to about 5,900 feet at the top of the Simcoe Mountains.

The area is 84 miles long and 13 to 29 miles wide. It has a total area of 1,013,863 acres, or 1,583 square miles. About 24 percent of the area is cultivated, 42 percent is rangeland, and 34 percent is forestland. The major crops include small grain, grass and legumes grown for hay and pasture, and orchard crops. About 32,333 acres are irrigated.

About 137 different kinds of soils are in the survey area. A majority of the soils formed in loess and colluvium and residuum derived from basalt. Some soils formed in alluvium, eolian sand, and lake sediment. Most of the soils are very deep and well drained; however, many soils in the eastern part of the survey area are moderately deep or shallow over basalt. Some soils in low-lying areas have restricted drainage and are affected by wetness or excessive salts.

An old unpublished soil survey covers most of the survey area. This present survey updates the earlier survey. It gives additional information and provides maps that show the soils in greater detail.

General Nature of the Survey Area

This section gives general information about the survey area. It discusses history and development, physiography, geology, and climate.

History and Development

The first settlement in the survey area was Columbus, which exists today as Maryhill. Settlement first occurred near the Columbia River because the sole method of bulk transportation from the area was by river barge. John Golden, who supplied cord wood to the Columbia River steamboats, settled the town. Until the advent of the railroad about 1905, most of the wheat crop was shipped from this port.

In 1867, Rockland, later known as North Dalles and now as Dallesport, was settled and became the seat of the territorial county of Klickitat. It was a major trading center, and at one time it supported glass, shoe, and box factories.

In 1871, John Golden filed a claim on the present site of Goldendale. Stage connections were made with The Dalles, Oregon, and shortly afterward regular runs to Yakima and Ellensburg were begun. In 1879, the county seat was moved to Goldendale, which is the largest city in the survey area. According to the 1990 census, the county has a population of about 16,616.

Albert J. Brown homesteaded at the present site of Centerville in 1877. This was once a thriving village, but it was nearly destroyed by fire and has never recovered.

A land boom started at Goodnoe in 1903. Hundreds of acres of apricots and almonds were planted and 10-acre plots were sold to investors all over the United States. Some of these orchards still remain. Orchards and truck crops are also grown at White Salmon, Bingen, Dallesport, Maryhill, and Sundale.

Roads within the survey were poor until about 1935 when U.S. Highway 30 was constructed through Maryhill and U.S. Highway 97 to Yakima was completed. Airports in Dallesport and Goldendale accommodate small aircraft.

The first agriculture within the area was the livestock industry, which was developed in areas of lush bluebunch wheatgrass and Idaho fescue. Field crop production began about 1880 with the introduction of spring wheat, and production was changed to a winter wheat-summer fallow system prior to World War I. Alfalfa was introduced about 1915, and hay production has increased to the point that the Goldendale Valley is now among the highest producing areas in the state.

The forest products industry has also expanded from its beginning as fuel for the Columbia River steamboats. Stands of Douglas-fir, ponderosa pine, and Oregon white oak have provided a sizable industry for rough and finished lumber, pulpwood, firewood, poles, and posts.

In addition to agriculture and forestry, aluminum production and retailing make up the economic base of the survey area.

Physiography

The survey area is bordered on the west by the Cascade Mountains. It is a transition zone between the Cascade Mountains to the west and the Columbia Basin to the east. Most of the area is on a southward sloping surface, which extends from the Simcoe Mountains and Horse Heaven Hills near the northern border to the Columbia River Gorge to the south.

The Columbia River flows along the southern boundary of the area. The lowest elevation is 70 feet, which is at the western edge where the Columbia River leaves the area. The highest elevation is Indian Rock, which is at 5,900 feet.

The survey area has seven major physiographic regions—Eastern Klickitat County,

Goldendale-Centerville area, Klickitat River Valley, Camas Prairie, Western Highlands, White Salmon River Valley, and Columbia River Gorge.

Eastern Klickitat County.—The eastern part of the survey area, an area of about 600 square miles, is a southeast-sloping plateau. It lies between part of the Horse Heaven Hills to the north and the Columbia Hills to the south. The plateau gradually decreases in elevation from about 3,000 feet at Bickleton to 600 feet near Alderdale. The major drainageways, Rock Creek and Alder Creek, have cut deep canyons into the plateau (fig. 1). The steep-walled canyons have a narrow valley floor that is about 500 to 800 feet lower than the surrounding surface of the plateau. These major drainageways have dissected the Columbia Hills, and they empty into the Columbia River.

Goldendale-Centerville area.—The Goldendale-Centerville area, in the central part of the survey area, is between the Rock Creek and Klickitat River canyons. This area encompasses about 700 square miles. The Simcoe Mountains make up the northern part, and a relatively flat plateau makes up the southern part. The Simcoe Mountains are a prominent topographic feature in the area, reaching an elevation of 5,900 feet. The mountains gradually descend to the plateau that is at an elevation of about 1,700 feet. A number of prominent buttes of volcanic origin are along the foothills of the mountains. These cinder cones and volcanic domes are a few hundred feet to 600 feet higher than the surrounding area. The most prominent are Twin Buttes, near Goldendale, and Blockhouse Butte, 7 miles to the northwest.

The Little Klickitat River and its tributaries drain the northern half of this area, and Swale Creek drains the southern half. These streams flow in a westerly direction to a confluence with the Klickitat River.

Klickitat River Valley.—The Klickitat River Valley extends from the Yakima County



Figure 1.—Steep-walled canyons cut by Rock Creek.

line to the mouth of the Klickitat River, near the community of Lyle (fig. 2). The valley is steep-walled and narrow. The valley floor is about 1,000 to 1,500 feet lower than the surrounding surface of the plateau. The Klickitat River enters the survey area at an elevation of about 1,380 feet and extends 45 miles south to its confluence with the Columbia River, at an elevation of 70 feet.

Camas Prairie.—Camas Prairie is a triangular area of about 50 square miles, and it includes most of the Outlet Creek basin. It is south of the Yakima County line and east of the White Salmon River Valley. The prairie is nearly flat, and elevation generally is less than 100 feet. The elevation at Glenwood, the principal community, is 1,895 feet. The valley is surrounded by much more rugged land, which rises to an elevation of 3,000 feet. Outlet Creek is the main drainageway. It flows in a northeasterly direction to its confluence with the Klickitat River.

Western Highlands.—Between the White Salmon and Klickitat River Valleys and south of Camas Prairie is a rugged plateau referred to as the Western Highlands. Elevation of the plateau ranges from about 2,800 feet at the northern edge to 1,600 feet at the southern edge. The plateau is dissected by Rattlesnake Creek to the southwest and Major Creek to the south. The area includes steep canyons that are about 1,000 to 1,500 feet lower than the surrounding plateau.

White Salmon River Valley.—The White Salmon River Valley in the western part of the survey area has a wide, flat floor. The valley extends from Trout Lake, elevation 1,880 feet, in the northern part to White Salmon, elevation 800 feet, in the southern part. The valley ranges from 0.25 to 3.0 miles in width. Within a few miles of the river, mountains rise abruptly to an elevation of about 3,000 to 4,000 feet.

Columbia River Gorge.—The Columbia River flows in a deep canyon 80 miles long, and it forms the southern margin of the survey area. The width of the gorge



Figure 2.—Klickitat River Valley with Mount Hood in background. Legall, Leidl, and Sauter soils are on the steep canyon side slopes.

varies from a few hundred feet to as much as 4 to 5 miles in some areas. At the east end of the survey area, the river is only a few hundred feet lower than the surface of the plateau to the north (fig. 3). The gorge becomes progressively deeper to the west, with differences in elevation between the river and the undissected plateau more than 2,000 feet. Differences in elevation between the river and parts of the Columbia Hills immediately to the north are more than 3,000 feet in some areas. This extreme topographic variation isolates the gorge from the rest of the survey area. The construction of several large dams on the river resulted in the displacement of much of the bottomland in the gorge; however, small benches that are several hundred feet higher than the river are at Roosevelt, Maryhill, Lyle, and Bingen. A somewhat larger bench is directly across the river from The Dalles, Oregon. A small plateau that is about 1,000 feet higher than the Columbia River is about halfway between the communities of Maryhill and Roosevelt. It is known as Goodnoe Hills.

Geology

By Terry L. Aho, soil scientist, Natural Resources Conservation Service.

The geology of the survey area ranges in age from early Eocene to Recent, and it encompasses four major stratigraphic units—the Ohanapecosh Formation, volcanics of the Columbia River Basalt group, sediment of the Ellensburg Formation with metaquartzite and unconsolidated slackwater and gravel deposits from glacial flooding, and the younger Simcoe Basalt and cinder cones.



Figure 3.—Truck crops and orchards are on Ewall loamy sand in the Dallesport area in middleground. Dallesport gravelly fine sandy loam is on terraces above the orchards. Fisherhill and Stacker soils are on backslopes of Dalles Mountain in background. The Columbia River is at left.

The oldest stratigraphic unit in the survey area, the Ohanapecosh Formation, is a series of volcanic and volcanoclastic rock outcroppings near the western edge of the area. The sequence is only partially exposed and consists of both pyroclastic and epiclastic rock with some interbedded basaltic and andesitic lava. This unit consists primarily of tuff breccia with clasts of andesite and pumice in an ashy matrix composed of glass shards and small rock fragments, most of which are altered and commonly are green or reddish green in color. This unit has been dated as early as Eocene and as late as Miocene (Brown, 1979).

The most extensive stratigraphic unit in the survey area is the Columbia River Basalt group. This basalt forms the high, dark brown to black cliffs along the sides of the Columbia River Gorge and other major canyons in the area. The basalt underlies most of the survey area as horizontal flows, except in a few areas where tectonic forces have deformed and tilted the flows. Near the town of Lyle, the flows dip toward the southeast and have been deformed by the uplift of the Cascade Mountains.

The Columbia River Basalt erupted from fissures or from very long cracks in Eastern Washington, each of which was many miles long. The flows spread almost like water for great distances. This is evident by the apparent uniformity in thickness of the flows. The overall thickness is several thousand feet. The Columbia River Basalt has been dated as early to middle Miocene.

Overlying the Columbia River Basalt in many areas are sedimentary deposits. These deposits vary in thickness and composition. In the southeastern part of the survey area, unconsolidated material consisting mainly of slackwater silt and some gravel are related to glacial flooding. The lacustrine sediment was deposited in areas as much as 1,000 feet in elevation. In addition to the lacustrine silt are ice-rafted erratics of granite and metaquartzite (fig. 4). Unconsolidated gravel, sand, and silt are in many areas along the Columbia River. These deposits are also related to glacial flooding, and most are less than 50 feet thick.

Poorly indurated sedimentary deposits consisting of metaquartzite-bearing conglomerate, gravel, and micaceous sand and silt are in the Goldendale area, Little Klickitat River drainageway, Swale Creek-Centerville area, and Bickleton area. This sediment commonly is poorly sorted, and although it is 50 to 60 percent metaquartzite, andesite and basalt are also present in much lower amounts (Sheppard, 1960). Because of the poorly indurated nature of the sediment, exposure in the Goldendale area is generally restricted to areas where erosion has cut through the protective cap of younger basalt. Exposures of this sediment are along U.S. Highway 97, between Goldendale and Satus Pass. The sediment has been correlated to the Ellensburg Formation and is related to the ancient Columbia River system (Sylvester, 1978). The Ellensburg Formation ranges in age from Pliocene to Recent. The deposits in Swale Creek are younger and consist of metaquartzite gravel interbedded with tuff and tuffaceous and micaceous sand. This suggests that the quartzite gravel in the deposits may have been reworked to some degree.

Overlying much of the Ellensburg Formation and part of the Columbia River Basalt is younger basalt consisting of olivine, dacite, rhyolite, and andesite flows. The olivine basalt, the most common of the younger basalt, is in the Simcoe Mountains, north of Goldendale and west toward Glenwood. The Little Klickitat River appears to mark the southern boundary of the younger basalt, except for the local volcanic centers at Lorena and Haystack Buttes and some exposures south of the confluence of the Little Klickitat and Klickitat Rivers. The Trout Lake and Glenwood Valleys are filled with young basalt, and the canyons of the Klickitat and White Salmon Rivers are partially filled with younger basalt. These valley-filling flows clearly indicate that the major drainageways were well established by the time of the extrusion of the younger basalt. This younger basalt has been dated as late Pliocene to Recent. No exposures of younger basalt have been found east of Rock Creek. The dacite, rhyolite, and andesite flows are of limited extent in the survey area.



Figure 4.—Ice-rafted granite erratic in an area of Warden silt loam, 2 to 5 percent slopes. These boulders originated in the Rocky Mountains and were ice rafted to their present location during the Spokane Floods about 10,000 years ago.

Recent volcanism is apparent in the survey area, with cinder cone extrusions throughout the young Simcoe Basalt. These cinder cones are generally 150 to 300 feet high. They consist of red to dark gray, poorly sorted, unconsolidated scoria. Blockhouse Butte, Jackknife Butte, and Carp Lake are only a few of the many cinder cones in the survey area. Many of these cinder cones are mined for the dark red scoria.

The Columbia Hills anticline in the southern part of the survey area and the Horse Heaven anticline in the northern part are major tectonic structural features. Between the Columbia Hills and Horse Heaven anticlines is the Swale Creek syncline. This syncline parallels the Columbia Hills structure and forms a natural trough through which Swale Creek flows. Other minor anticlines and synclines include the Horseshoe Bend anticline, Bingen anticline, and Mosier syncline and an unnamed syncline that is occupied by Rattlesnake Creek. While most of the structural features in the survey area are in the western half and are related to the uplift of the Cascade Mountains, some dipping of the Columbia River Basalt is evident in the eastern half, toward the Columbia Basin.

Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

The climate in the survey area reflects the effect of the Pacific Ocean pressure systems and temperature changes associated with the changing seasons. In winter, a prevailing low-pressure system off the coast of the Pacific Northwest brings cold and wet weather to the area. In summer, however, the low-pressure system is deflected to

the north (Gulf of Alaska) and replaced by a high-pressure system, which results in hot, dry weather. Temperatures in the survey area are greatly affected by changes in elevation.

In winter, the average temperature is 36 degrees F at Dallesport, 32 degrees at Goldendale, 31 degrees at Appleton, 30 degrees at Glenwood, 30 degrees at Satus Pass, 31 degrees at Mount Adams (Trout Lake Ranger Station), and 31 degrees at Bickleton. The average daily minimum temperature in winter is 24 degrees. The lowest temperature on record, which occurred at Mount Adams on January 26, 1957, is -24 degrees. Chinook winds occasionally result in a rapid rise in the temperature in winter.

In summer, the average temperature is 71 degrees at Dallesport, 64 degrees at Goldendale, 62 degrees at Appleton, 59 degrees at Glenwood, 61 degrees at Satus Pass, 63 degrees at Mount Adams, and 64 degrees at Bickleton. The average daily maximum temperature in summer is about 80 degrees. The highest recorded temperature, which occurred at Dallesport on August 17, 1977, is 110 degrees.

The survey area is in a rainshadow created by the Cascade Mountains. Precipitation is highest in the western part of the survey area and at higher elevations, reaching about 60 inches near Mount Adams. Precipitation decreases to the south and east, and it is less than 6 inches at the Benton County line. Comparison of yearly precipitation data for seven selected stations illustrates the decrease in precipitation occurring from west to east and areas of higher elevation to areas of lower elevation—Mount Adams, 45 inches; Appleton, 33 inches; Glenwood, 31 inches; Satus Pass, 24 inches; Goldendale, 16 inches; Dallesport, 13 inches; and Bickleton, 13 inches. Most of the annual precipitation is in the form of snow and rain and occurs during November through February. Summers are hot and dry; little, if any, rainfall occurs in July and August.

The average seasonal snowfall varies with elevation, but it is usually light and seldom accumulates to more than 10 inches. The greatest snow depth at any one time during the period of record was 86 inches at Mount Adams. During unusually severe winters, snow is on the ground most of the time from late in December to early in February, but in normal years snow stays on the ground for only 2 to 4 weeks at a time. The heaviest 1-day rainfall during the period of record was 4.35 inches at Mount Adams on January 15, 1974. Thunderstorms occur on about 7 days each year, and most occur in summer.

The average relative humidity in midafternoon is about 40 percent. Humidity is higher at night, and the average at dawn is about 75 percent. The sun shines 75 percent of the time possible in summer and 30 percent in winter. The prevailing winds are from the west-northwest, but the strongest winds are from the southwest. The average velocity ranges from 5 to 7 miles per hour in summer.

Additional climatic data is available online at <http://www.wcc.nrcs.usda.gov/climate/>.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Well Drained Soils that Formed in Colluvium and Residuum Derived from Basalt; on Mountains

1. Kingtain-McElroy-Timberhead

Moderately steep to very steep, very deep, well drained soils on mountains in a 45- to 65-inch precipitation zone

This map unit is along the northern and western boundaries of the survey area. The soils are moderately steep to very steep. They are on backslopes of Guler and King Mountains. Elevation is 700 to 4,300 feet. The mean annual precipitation is 45 to 65 inches, the mean annual air temperature is 38 to 47 degrees F, and the frost-free period is 65 to 130 days.

This map unit makes up about 4 percent of the survey area. The unit is composed of Kingtain, McElroy, and Timberhead soils of major extent and other included soils of minor extent.

The Kingtain soils are very deep. They formed in colluvium derived from basalt mixed with volcanic ash. The mean annual precipitation is 45 to 55 inches.

The McElroy soils are very deep. They formed in colluvium and residuum derived from basalt mixed with volcanic ash. The mean annual precipitation is 45 to 65 inches.

The Timberhead soils are very deep. They formed in colluvium and residuum derived from basalt mixed with volcanic ash. The mean annual precipitation is 50 to 65 inches.

Of minor extent are Sugarbowl, Troutlake, and Bercumb soils and Dystroxerepts.

This unit is used mainly for timber production and as wildlife habitat.

2. Firoke-Panak-Kaiders

Moderately steep to very steep, very deep, well drained soils on mountains in a 25- to 55-inch precipitation zone

This map unit is along the northern and western boundaries of the survey area. The soils are moderately steep to very steep. They are on backslopes of King Mountain. Elevation is 1,800 to 4,200 feet. The mean annual precipitation is 25 to 55 inches, the mean annual air temperature is 39 to 46 degrees F, and the frost-free period is 70 to 130 days.

This map unit makes up about 3 percent of the survey area. It is composed of Firoke, Panak, and Kaiders soils of major extent and other included soils of minor extent.

The Firoke soils are very deep. They formed in colluvium derived from basalt mixed with volcanic ash. The mean annual precipitation is 40 to 55 inches.

The Panak soils are very deep. They formed in colluvium and residuum derived from basalt with an influence of volcanic ash. The mean annual precipitation is 30 to 40 inches.

The Kaiders soils are very deep. They formed in colluvium derived from basalt with a minor amount of volcanic ash and loess. The mean annual precipitation is 25 to 35 inches.

Of minor extent are Bercumb soils.

This unit is used mainly for timber production and as wildlife habitat.

3. Pird-Andic Haplocryalfs

Moderately steep to very steep, shallow to very deep, well drained soils on mountains in a 30- to 40-inch precipitation zone

This map unit is in the north-central part of the survey area, at the top of the Simcoe Mountains. The soils are moderately steep to very steep. They are on footslopes and backslopes of mountains. Elevation is 4,000 to 5,900 feet. The mean annual precipitation is 30 to 40 inches, the mean annual air temperature is 36 to 42 degrees F, and the frost-free period is 40 to 70 days.

This map unit makes up about 1 percent of the survey area. It is composed of Pird soils and Andic Haplocryalfs of major extent and other included soils of minor extent.

The Pird soils are very deep. They formed in colluvium and residuum derived from basalt mixed with volcanic ash. The mean annual precipitation is 30 to 40 inches.

Andic Haplocryalfs are shallow and moderately deep. They formed in colluvium derived from basalt mixed with volcanic ash. The mean annual precipitation is 30 to 40 inches.

Of minor extent are Satus and Grandpon soils.

This unit is used mainly for timber production, livestock grazing, and wildlife habitat.

4. Satus

Moderately steep to very steep, very deep, well drained soils on mountains in a 25- to 35-inch precipitation zone

This map unit is in the north-central part of the survey area. The soils are moderately steep to very steep. They are on footslopes and backslopes of the Simcoe Mountains. Elevation is 2,000 to 5,000 feet. The mean annual precipitation is 25 to 35 inches, the mean annual air temperature is 39 to 45 degrees F, and the frost-free period is 80 to 110 days.

This map unit makes up about 2 percent of the survey area. It is composed of

Satus soils of major extent and other included soils of minor extent.

The Satus soils are very deep. They formed in colluvium and residuum derived from basalt mixed with volcanic ash in the upper part. The mean annual precipitation is 25 to 35 inches.

Of minor extent are Presher, Yedlick, and Quiden soils.

This unit is used mainly for timber production and as wildlife habitat.

5. Berson-Bocker-Klicko

Moderately steep to steep, very shallow, moderately deep, and deep, well drained soils on mountains in a 17- to 35-inch precipitation zone

This map unit is along the north-central part of the survey area. The soils are moderately steep to steep. They are on footslopes and backslopes of the Simcoe Mountains. Elevation is 2,600 to 4,700 feet. The mean annual precipitation is 17 to 35 inches, the mean annual air temperature is 40 to 45 degrees F, and the frost-free period is 60 to 130 days.

This map unit makes up about 5 percent of the survey area. It is composed of Berson, Bocker, and Klicko soils of major extent and other included soils of minor extent.

The Berson soils are deep. They formed in colluvium and residuum derived from basalt mixed with loess and volcanic ash in the upper part. The mean annual precipitation is 20 to 35 inches.

The Bocker soils are very shallow. They formed in colluvium and residuum derived from basalt mixed with loess and a minor amount of volcanic ash. The mean annual precipitation is 17 to 30 inches.

The Klicko soils are moderately deep. They formed in colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part. The mean annual precipitation is 17 to 30 inches.

Of minor extent are Itat, Kaiders, Tekison, and Thiessen soils.

This unit is used mainly for timber production, wildlife habitat, and livestock grazing.

Well Drained Soils that Formed in Loess over Bedrock and in Colluvium and Residuum Derived from Basalt; on Mountains, Hills, and Plateaus

6. Underwood-McGowan-Gunn

Gently sloping to very steep, very deep, well drained soils on mountains, hills, and plateaus in an 18- to 65-inch precipitation zone

This map unit is in the western and north-central parts of the survey area. The soils are gently sloping to very steep. They are on basalt plateaus, hills, and footslopes and backslopes of the Simcoe Mountains. Elevation is 300 to 2,800 feet. The mean annual precipitation is 18 to 65 inches, the mean annual air temperature is 45 to 50 degrees F, and the frost-free period is 100 to 150 days.

This map unit makes up about 20 percent of the survey area. It is composed of Underwood, McGowan, and Gunn soils of major extent and other included soils of minor extent.

The Underwood soils are very deep. They formed in colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part. They are on

plateaus and footslopes and backslopes of mountains. The mean annual precipitation is 35 to 65 inches.

The McGowan soils are very deep. They formed in colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part. They are on plateaus. The mean annual precipitation is 35 to 45 inches.

The Gunn soils are very deep. They formed in colluvium and residuum derived from basalt mixed with loess. They are on plateaus and hillslopes. The mean annual precipitation is 18 to 25 inches.

Of minor extent are Dalig, Maydol, Balake, Galiente, Itat, Presher, Quiden, Suta, Lyville, and Nook soils; Aqualfs; Eagreek, Kiakus, Tigit, Wahoo, and Rockly soils; and Xerands.

This unit is used mainly for timber production, wildlife habitat, and crop production.

7. Goldendale-Lorena

Nearly level to very steep, moderately deep to very deep, well drained soils on hills and plateaus in a 15- to 18-inch precipitation zone

This map unit is in the central part of the survey area. The soils are nearly level to very steep. They are on plateaus and hillslopes. Elevation is 300 to 3,000 feet. The mean annual precipitation is 15 to 18 inches, the mean annual air temperature is 46 to 50 degrees F, and the frost-free period is 120 to 150 days.

This map unit makes up about 10 percent of the survey area. It is composed of Goldendale and Lorena soils of major extent and other included soils of minor extent (fig. 5).

The Goldendale soils are deep and very deep. They formed in loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash. The mean annual precipitation is 15 to 18 inches.

The Lorena soils are moderately deep. They formed in slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash. The mean annual precipitation is 15 to 18 inches.

Of minor extent are Blockhouse, Setnum, Munset, Nook, Threecreeks, Rockly, Leidl, Kiakus, and Hyprairie soils.

This unit is used mainly for crop production, livestock grazing, and wildlife habitat.

8. Goldendale-Lorena (North)

Nearly level to very steep, moderately deep to very deep, well drained soils on hills and plateaus in a 15- to 18-inch precipitation zone

This map unit is in the south-central part of the survey area, along the Columbia Hills. The soils are nearly level to very steep and are on north-facing slopes. Elevation is 800 to 3,100 feet. The mean annual precipitation is 15 to 18 inches, the mean annual air temperature is 46 to 50 degrees F, and the frost-free period is 120 to 150 days.

This map unit makes up about 3 percent of the survey area. It is composed of Goldendale and Lorena soils of major extent and other included soils of minor extent.

The Goldendale soils are deep and very deep. They formed in loess mixed with slope alluvium, colluvium, and residuum derived from basalt with a minor amount of volcanic ash. The mean annual precipitation is 15 to 18 inches.

The Lorena soils are moderately deep. They formed in slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash. The mean annual precipitation is 15 to 18 inches.

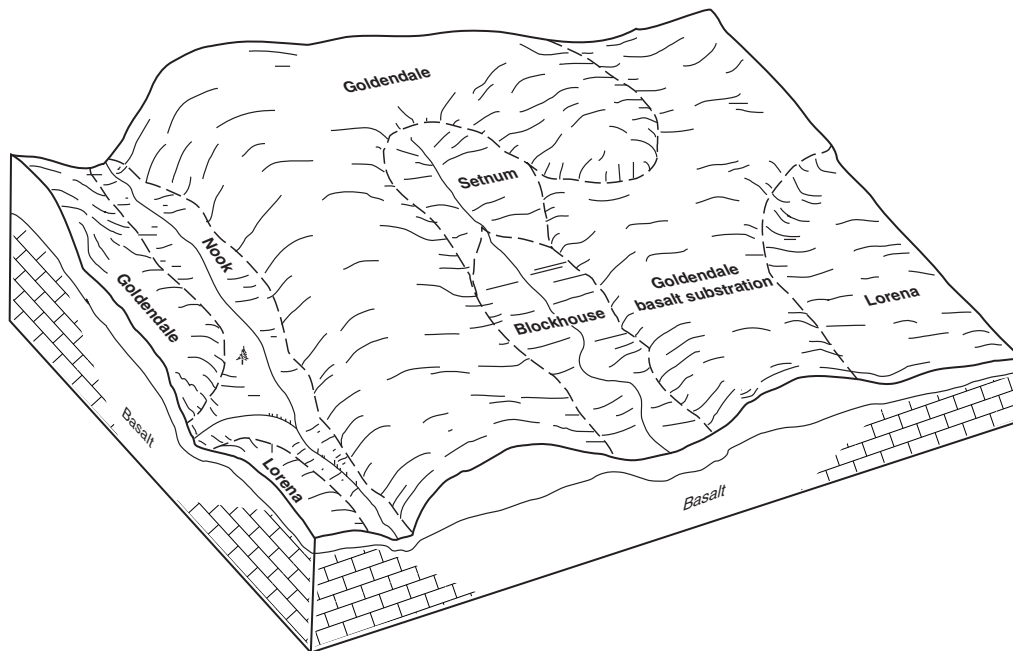


Figure 5.—Representative landscape cross-section of general soil map unit 7.

Of minor extent are Blockhouse, Setnum, Munset, Swalecreek, Rockly, Leidl, Dillcourt, and Tekison soils.

This unit is used mainly for livestock grazing, crop production, and wildlife habitat.

9. Van Nostern-Morrow-Bakeoven

Nearly level to moderately steep, very shallow and moderately deep, well drained soils on plateaus in a 12- to 16-inch precipitation zone

This map unit is in the east-central part of the survey area, around the community of Bickleton. The soils are nearly level to moderately steep. They are on plateaus. Elevation is 1,800 to 4,000 feet. The mean annual precipitation is 12 to 16 inches, the mean annual air temperature is 46 to 50 degrees F, and the frost-free period is 125 to 160 days.

This map unit makes up about 9 percent of the survey area. It is composed of Van Nostern, Morrow, and Bakeoven soils of major extent and other included soils of minor extent (fig. 6).

The Van Nostern soils are moderately deep. They formed in loess over basalt. The mean annual precipitation is 12 to 15 inches.

The Morrow soils are moderately deep. They formed in loess over basalt. The mean annual precipitation is 12 to 16 inches.

The Bakeoven soils are very shallow. They formed in residuum derived from basalt mixed with loess. The mean annual precipitation is 12 to 15 inches.

Of minor extent are Bickleton, Broadax, Camaspatch, Endicott, Moxee, Reilloc, Sienna, Thiessen, Tronsen, Walla Walla, Onyx, and Oxy soils.

This unit is used mainly for livestock grazing, crop production, and wildlife habitat.

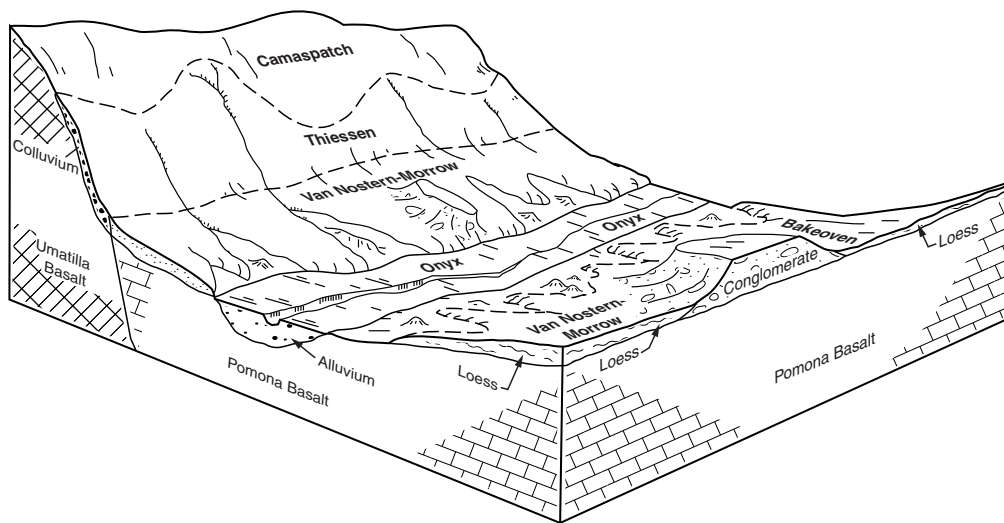


Figure 6.—Representative landscape cross-section of general soil map unit 9.

10. Mikkalo-Bakeoven

Nearly level to moderately steep, very shallow and moderately deep, well drained soils on plateaus in a 9- to 12-inch precipitation zone

This map unit is in the eastern part of the survey area (fig. 7). The soils are nearly level to moderately steep. They are on plateaus. Elevation is 300 to 3,300 feet. The mean annual precipitation is 9 to 12 inches, the mean annual air temperature is 48 to 52 degrees F, and the frost-free period is 130 to 180 days.

This map unit makes up about 9 percent of the survey area. It is composed of Mikkalo and Bakeoven soils of major extent and other included soils of minor extent.

The Mikkalo soils are moderately deep. They formed in loess over basalt. The mean annual precipitation is 9 to 12 inches.

The Bakeoven soils are very shallow. They formed in residuum derived from basalt mixed with loess. The mean annual precipitation is 9 to 12 inches.

Of minor extent are Benwy, Meloza, Nansene, Renslow, Ritzville, Prosser, Selah, and Willis soils.

This unit is used mainly for crop production, livestock grazing, and wildlife habitat.

Somewhat Poorly Drained to Excessively Drained Soils that Formed in Alluvium, Mudflows, Volcanic Ash Deposits, Eolian and Lacustrine Deposits, and Loess, and Rock Outcrop; on Flood Plains and Terraces

11. Sagehill-Hezel-Quincy

Nearly level to steep, very deep, well drained to excessively drained soils on terraces and dunes in a 6- to 10-inch precipitation zone

This map unit is in the southeastern part of the survey area. These soils are nearly level to steep. They are on eolian and lacustrine terraces and dunes. Elevation is 150

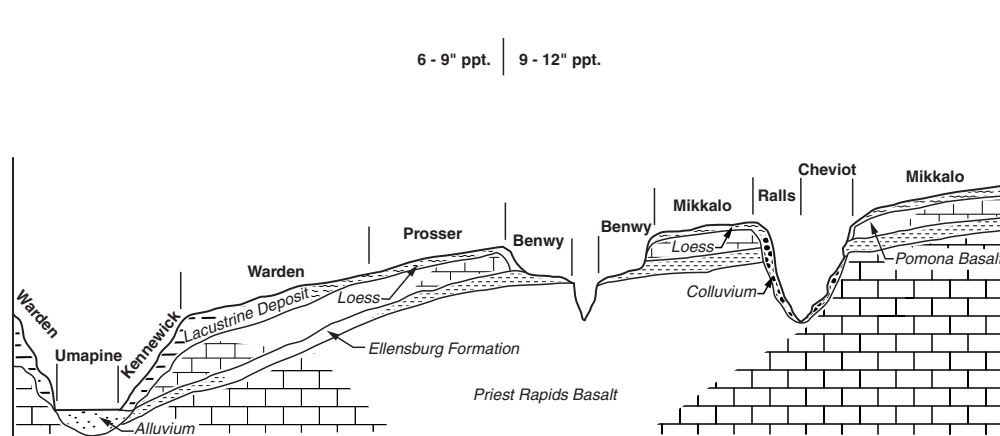


Figure 7.—Representative landscape cross-section of the soils in the eastern part of the survey area.

to 1,100 feet. The mean annual precipitation is 6 to 10 inches, the mean annual air temperature is 50 to 54 degrees F, and the frost-free period is 150 to 180 days.

This map unit makes up about 1 percent of the survey area. It is composed of Sagehill, Hezel, and Quincy soils of major extent and other included soils of minor extent.

The Sagehill soils are very deep and well drained. They formed in lacustrine deposits with a mantle of loess. They are on terraces. The mean annual precipitation is 6 to 9 inches.

The Hezel soils are very deep and somewhat excessively drained. They formed in lacustrine sediment with a mantle of eolian sand. They are on terraces. The mean annual precipitation is 6 to 10 inches.

The Quincy soils are very deep and excessively drained. They formed in eolian sand. They are on terraces and dunes. The mean annual precipitation is 6 to 9 inches.

Of minor extent in this map unit are Koehler, Quinton, Kennewick, Malaga, Prosser, and Warden soils.

This unit is used mainly for irrigated crop production and livestock grazing.

12. Warden

Nearly level to moderately steep, very deep, well drained soils on terraces and terrace escarpments in a 6- to 9-inch precipitation zone

This map unit is in the southeastern part of the survey area. The soils are nearly level to moderately steep. They are on dissected lacustrine terraces and terrace escarpments. Elevation is 300 to 1,200 feet. The mean annual precipitation is 6 to 9 inches, the mean annual air temperature is 48 to 52 degrees F, and the frost-free period is 150 to 180 days.

This map unit makes up about 3 percent of the survey area. The unit is composed of Warden soils of major extent and other included soils of minor extent (fig. 7).

The Warden soils are very deep. They formed in loess over lacustrine deposits. They are on terraces and terrace escarpments. The mean annual precipitation is 6 to 9 inches.

Of minor extent in this map unit are Prosser, Shano, Kennewick, and Sagehill soils.

This unit is used mainly for irrigated crop production, livestock grazing, and wildlife habitat. Some areas are used for nonirrigated crop production.

13. Chemawa-Hood

Gently sloping to steep, very deep, well drained soils on terraces and terrace escarpments in a 30- to 65-inch precipitation zone

This map unit is in the southwestern part of the survey area, along the White Salmon River. The soils are gently sloping to steep. They are on terraces and terrace escarpments. Elevation is 100 to 2,200 feet. The mean annual precipitation is 30 to 65 inches, the mean annual air temperature is 46 to 50 degrees F, and the frost-free period is 110 to 160 days.

This map unit makes up about 2 percent of the survey area. It is composed of Chemawa and Hood soils of major extent and other included soils of minor extent.

The Chemawa soils are very deep. They formed in pyroclastic flows composed of volcanic ash. They are on terraces. The mean annual precipitation is 45 to 65 inches.

The Hood soils are very deep. They formed in lacustrine deposits. They are on terraces and terrace escarpments. The mean annual precipitation is 30 to 45 inches.

Of minor extent in this map unit are McGowan, Underwood, Husum, and Jebe soils.

This unit is used mainly for timber production, for irrigated and nonirrigated crop production, as orchards and vineyards, and as wildlife habitat.

14. Troutor-Volash-Flotag

Nearly level to strongly sloping, moderately deep to very deep, moderately well drained and well drained soils on terraces and basalt plains in a 47- to 57-inch precipitation zone

This map unit is in the northwestern part of the survey area. The soils are nearly level to strongly sloping. They are on terraces and basalt plains. Elevation is 800 to 2,800 feet. The mean annual precipitation is 47 to 57 inches, the mean annual air temperature is 43 to 48 degrees F, and the frost-free period is 75 to 110 days.

This map unit makes up about 2 percent of the survey area. It is composed of Troutor, Volash, and Flotag soils of major extent and other included soils of minor extent.

The Troutor soils are moderately deep and well drained. They formed in volcanic ash over basalt. They are on valley terraces. The mean annual precipitation is 48 to 52 inches.

The Volash soils are deep and well drained. They formed in volcanic ash over basalt. They are on basalt plains. The mean annual precipitation is 52 to 57 inches.

The Flotag soils are very deep and moderately well drained. They formed in mudflow deposits. They are on terraces. The mean annual precipitation is 47 to 53 inches.

Of minor extent in this map unit are Fanal, Grayland, Kingtain, and Troutlake soils and Fluvaquentic Endoaquolls.

This unit is used mainly for timber production, wildlife habitat, and irrigated crop production. Some areas are used for nonirrigated crop production.

15. Ewall-Dallesport-Rock outcrop

Gently sloping to moderately steep, very deep, somewhat excessively drained and excessively drained soils and Rock outcrop on terraces and terrace escarpments in a 10- to 15-inch precipitation zone

This map unit is in the south-central part of the survey area, along the Columbia River. The soils are gently sloping to moderately steep. They are on sandy and gravelly terraces. Elevation is 100 to 900 feet. The mean annual precipitation is 10 to 15 inches, the mean annual air temperature is 50 to 54 degrees F, and the frost-free period is 130 to 180 days.

This map unit makes up about 1 percent of the survey area. It is composed of Ewall and Dallesport soils and Rock outcrop of major extent and other included soils of minor extent (fig. 8).

The Ewall soils are very deep. They formed in eolian deposits. They are on terraces and terrace escarpments. The mean annual precipitation is 12 to 15 inches.

The Dallesport soils are very deep. They formed in eolian deposits over old sandy and gravelly alluvium. They are on terraces and terrace escarpments. The mean annual precipitation is 10 to 15 inches.

Rock outcrop consists of exposures of basalt in areas where soil material has been eroded from the landscape.

Of minor extent in this map unit are Aquolls, Dillcourt soils, Haploxerolls, and Walla Walla soils.

This unit is used mainly for livestock grazing, irrigated crop production, wetland wildlife habitat, and other wildlife habitat. Some areas are used for nonirrigated crop production.

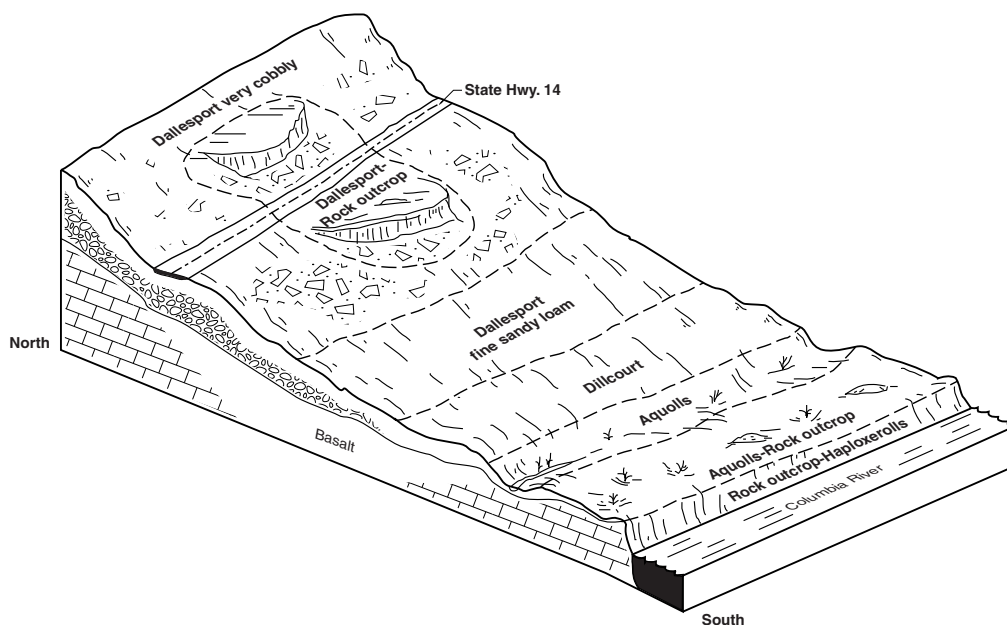


Figure 8.—Representative landscape cross-section of general soil map unit 15.

16. Swalecreek-Niva-Konner

Nearly level to steep, very deep, somewhat poorly drained and well drained soils on flood plains, terraces, and terrace escarpments in a 15- to 18-inch precipitation zone

This map unit is in the central part of the survey area, along Swale Creek. These soils are nearly level to steep. They are on flood plains, terraces, and terrace escarpments. Elevation is 500 to 2,600 feet. The mean annual precipitation is 15 to 18 inches, the mean annual air temperature is 46 to 50 degrees F, and the frost-free period is 90 to 150 days.

This map unit makes up about 2 percent of the survey area. It is composed of Swalecreek, Niva, and Konner soils of major extent and other included soils of minor extent ([fig. 9](#)).

The Swalecreek soils are very deep and well drained. They formed in alluvium derived from basalt mixed with loess. They are on terraces and terrace escarpments. The mean annual precipitation is 15 to 18 inches.

The Niva soils are shallow and well drained. They formed in alluvium over a duripan. They are on terraces and terrace escarpments. The mean annual precipitation is 15 to 17 inches.

The Konner soils are very deep and somewhat poorly drained. They formed in alluvium. They are on flood plains. The mean annual precipitation is 16 to 18 inches.

Of minor extent in this map unit are Blockhouse, Goldendale, Konert, Lorena, and Mondovi soils.

This unit is used mainly for irrigated and nonirrigated crop production, livestock grazing, wetland wildlife habitat, and other wildlife habitat.

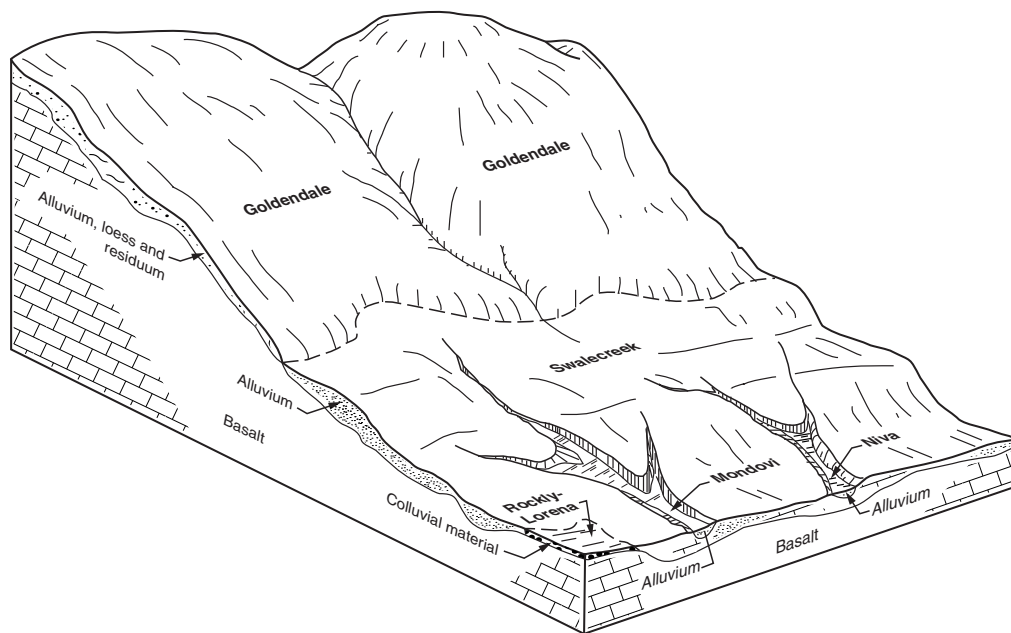


Figure 9.—Representative landscape cross-section of general soil map unit 16 (lower part of diagram).

Well Drained Soils that Formed in Colluvium and Residuum Derived from Basalt Mixed with Loess; on Canyons and Hills

17. Leidl-Jebe-Dillcourt

Moderately steep to very steep, moderately deep and very deep, well drained soils on canyons in an 18- to 45-inch precipitation zone

This map unit is along the southern edge of the county, on steep canyonsides above the Columbia River and extending north along major drainageways. These soils are moderately steep to very steep. Elevation is 200 to 4,100 feet. The mean annual precipitation is 18 to 45 inches, the mean annual air temperature is 46 to 48 degrees F, and the frost-free period is 100 to 140 days.

This map unit makes up about 7 percent of the survey area. It is composed of Leidl, Jebe, and Dillcourt soils of major extent and other included soils of minor extent.

The Leidl soils are moderately deep. They formed in colluvium and residuum derived from basalt with an influence of volcanic ash and loess in the upper part. They are on canyonsides. The mean annual precipitation is 18 to 25 inches.

The Jebe soils are very deep. They formed in colluvium derived from basalt mixed with loess and a minor amount of volcanic ash. They are on canyonsides. The mean annual precipitation is 35 to 45 inches.

The Dillcourt soils are very deep. They formed in colluvium derived from basalt mixed with loess. They are on canyonsides. The mean annual precipitation is 18 to 25 inches.

Of minor extent are Aquic Haploxerolls; Beezee and Cauley soils; Fluventic Haploxerolls; and Gwin, Legall, Mazdale, Oreoke, Sauter, Trelk, Wind River, and Yedlick soils.

This unit is used mainly for livestock grazing and timber production.

18. Cheviot-Horseflat-Rockly-Kiona

Moderately sloping to very steep, very shallow, shallow, and very deep, well drained soils on canyons and hills in a 6- to 18-inch precipitation zone

This map unit is along the southern edge of the county. The soils are on moderately sloping to very steep canyonsides above the Columbia River and extend north along major drainageways. Elevation is 200 to 3,400 feet. The mean annual precipitation is 6 to 18 inches, the mean annual air temperature is 46 to 54 degrees F, and the frost-free period is 110 to 180 days.

This map unit makes up about 16 percent of the survey area. It is composed of Cheviot, Horseflat, Rockly, and Kiona soils of major extent and other included soils of minor extent.

The Cheviot soils are very deep. They formed in colluvium derived from basalt mixed with loess. They are on canyonsides and hillslopes. The mean annual precipitation is 9 to 13 inches.

The Horseflat soils are shallow. They formed in colluvium and residuum derived from basalt. They are on hillslopes. The mean annual precipitation is 9 to 14 inches.

The Rockly soils are very shallow. They formed in colluvium derived from basalt

mixed with loess and a minor amount of volcanic ash. They are on canyonsides. The mean annual precipitation is 15 to 18 inches.

The Kiona soils are very deep. They formed in colluvium derived from basalt mixed with loess. They are on canyonsides. The mean annual precipitation is 6 to 9 inches.

Of minor extent in this map unit are Asotin, Bakeoven, Badge, Bolicker, Borfin, Cleman, Colockum, Fisherhill, and Goodnoe soils; Haploxerolls; and Kahlotus, Lickskillet, Nansene, Olex, Oxy, Ralls, Stacker, Starbuck, Tekison, Umapine, Wato, Weirman, and Wipple soils.

This unit is used mainly for livestock grazing and as wildlife habitat. Some areas are used for crop production.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For

example, Goldendale silt loam, 2 to 5 percent slopes, is a phase of the Goldendale series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Rockly-Tekison-Rock outcrop complex, 5 to 30 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop-Rubble land complex, very steep, is an example.

Each detailed soil map unit is assigned to a major land resource area (MLRA) (USDA Agriculture Handbook 296). The MLRA for each detailed soil map unit is given in this section. Some map units, such as Rock outcrop, Water, and other miscellaneous areas, may not be assigned to a single MLRA because the unit can occur in any MLRA (USDA, 1981).

[Table 1](#) gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

1B—Satus stony ashy loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 2,700 to 4,600 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 80 to 110 days

Map Unit Composition

Satus and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Satus

Setting

Landform: Mountain slopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash in the upper part

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Grand fir/Cascade Oregon grape/pinegrass (CWS226)

Typical profile

0 to 4 inches; stony ashy loam

4 to 9 inches; gravelly ashy loam

9 to 42 inches; very gravelly loam

42 to 60 inches; very gravelly loam

Dissimilar Minor Components

Grandpon soils

Percentage of map unit: 5 percent

Suta soils

Percentage of map unit: 5 percent

Major Use

Timber production

2C—Satus stony ashy loam, 30 to 60 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 2,000 to 5,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 80 to 110 days

Map Unit Composition

Satus and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Satus

Setting

Landform: Mountain slopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash in the upper part

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups*Land capability subclass (nonirrigated): 7s**Plant community class: Grand fir/Cascade Oregongrape/pinegrass (CWS226)***Typical profile**

0 to 4 inches; stony ashy loam

4 to 9 inches; gravelly ashy loam

9 to 42 inches; very gravelly loam

42 to 60 inches; very gravelly loam

Dissimilar Minor Components**Grandpon soils***Percentage of map unit: 5 percent***Rock outcrop***Percentage of map unit: 5 percent***Suta soils***Percentage of map unit: 5 percent****Major Use***

Timber production

3C—Pird gravelly ashy loam, 30 to 60 percent slopes***Map Unit Setting****General landscape: Mountains**Major land resource area (MLRA): 6**Elevation: 4,000 to 5,900 feet**Mean annual precipitation: 30 to 40 inches**Mean annual air temperature: 36 to 42 degrees F**Frost-free period: 40 to 70 days****Map Unit Composition****Pird and similar soils: 85 percent**Dissimilar minor components: 15 percent****Characteristics of Pird*****Setting***Landform: Mountain slopes**Aspect (representative): Southeast**Aspect (range): North to southwest (clockwise)***Properties and qualities***Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash**Slope range: 30 to 60 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 7.2 inches)*

Interpretive groups*Land capability subclass (nonirrigated): 7e**Plant community class: Subalpine fir/dwarf huckleberry (CES422)***Typical profile**

0 to 9 inches; gravelly ashy loam

9 to 41 inches; very gravelly ashy loam

41 to 60 inches; very gravelly ashy loam

Dissimilar Minor Components**Grandpon soils***Percentage of map unit: 5 percent***Rubble land***Percentage of map unit: 5 percent***Satus soils***Percentage of map unit: 5 percent****Major Use***

Timber production

4B—Grandpon ashy loam, 8 to 30 percent slopes***Map Unit Setting****General landscape: Mountains**Major land resource area (MLRA): 6**Elevation: 3,700 to 4,000 feet**Mean annual precipitation: 25 to 35 inches**Mean annual air temperature: 38 to 45 degrees F**Frost-free period: 70 to 100 days****Map Unit Composition****Grandpon and similar soils: 85 percent**Dissimilar minor components: 15 percent****Characteristics of Grandpon*****Setting***Landform: Mountain slopes**Aspect (representative): Southeast**Aspect (range): Northeast to southwest (clockwise)***Properties and qualities***Parent material: Volcanic ash over colluvium derived from basalt**Slope range: 8 to 30 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 9.3 inches)*

Interpretive groups*Land capability subclass (nonirrigated): 4e**Plant community class: Grand fir/pinegrass (CWG124)***Typical profile**

0 to 20 inches; ashy loam

20 to 30 inches; ashy loam

30 to 60 inches; very gravelly loam

Dissimilar Minor Components**Rock outcrop***Percentage of map unit: 8 percent***Satus soils***Percentage of map unit: 7 percent****Major Use***

Timber production

6B—Berson gravelly ashy loam, 5 to 30 percent slopes***Map Unit Setting****General landscape: Mountains**Major land resource area (MLRA): 6**Elevation: 2,600 to 4,600 feet**Mean annual precipitation: 20 to 35 inches**Mean annual air temperature: 40 to 45 degrees F**Frost-free period: 80 to 120 days****Map Unit Composition****Berson and similar soils: 90 percent**Dissimilar minor components: 10 percent****Characteristics of Berson*****Setting***Landform: Mountain footslopes**Aspect (representative): South**Aspect (range): East to southwest (clockwise)***Properties and qualities***Parent material: Colluvium and residuum derived from basalt mixed with loess and volcanic ash in the upper part**Slope range: 5 to 30 percent**Depth to restrictive feature: 40 to 60 inches to paralithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Low (about 5.8 inches)***Interpretive groups***Land capability subclass (nonirrigated): 4e*

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 10 inches; gravelly ashy loam
10 to 32 inches; very gravelly loam
32 to 57 inches; extremely stony loam
57 to 67 inches; weathered bedrock

Dissimilar Minor Components**Bocker soils**

Percentage of map unit: 5 percent

Munset soils

Percentage of map unit: 5 percent

Major Use

Timber production

7B—Bocker-Klicko complex, 2 to 30 percent slopes***Map Unit Setting***

General landscape: Mountains
Major land resource area (MLRA): 6
Elevation: 2,600 to 4,700 feet
Mean annual precipitation: 17 to 30 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 60 to 130 days

Map Unit Composition

Bocker and similar soils: 70 percent
Klicko and similar soils: 25 percent
Dissimilar minor component: 5 percent

Characteristics of Bocker**Setting**

Landform: Mountain slopes
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 2 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups*Land capability subclass (nonirrigated): 7s**Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)***Typical profile**

0 to 2 inches; very cobbly silt loam

2 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Characteristics of Klicko**Setting***Landform: Mountain slopes**Aspect (representative): South**Aspect (range): East to southwest (clockwise)***Properties and qualities***Parent material: Loess mixed with colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part**Slope range: 2 to 30 percent**Depth to restrictive feature: 20 to 40 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 7.3 inches)***Interpretive groups***Land capability subclass (nonirrigated): 4e**Ecological site: LOAMY 15+ PZ (R006XY102WA)***Typical profile**

0 to 7 inches; ashy silt loam

7 to 17 inches; silt loam

17 to 31 inches; silt loam

31 to 39 inches; gravelly loam

39 to 43 inches; unweathered bedrock

Dissimilar Minor Component**Berson soils***Percentage of map unit: 5 percent****Major Use***

Livestock grazing

7C—Sapkin very cobbly loam, 5 to 40 percent slopes***Map Unit Setting****General landscape: Mountains**Major land resource area (MLRA): 8**Elevation: 2,900 to 3,670 feet**Mean annual precipitation: 18 to 35 inches**Mean annual air temperature: 43 to 45 degrees F**Frost-free period: 90 to 120 days*

Map Unit Composition

Sapkin and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Sapkin**Setting**

Landform: Mountain slopes

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt

Slope range: 5 to 40 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 7 inches; very cobbly loam

7 to 16 inches; very cobbly loam

16 to 36 inches; very cobbly loam

36 to 40 inches; unweathered bedrock

Dissimilar Minor Component**Bocker soils**

Percentage of map unit: 5 percent

Major Use

Livestock grazing

8C—Berson gravelly ashy loam, 30 to 45 percent slopes**Map Unit Setting**

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 2,600 to 4,600 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 80 to 120 days

Map Unit Composition

Berson and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Berson

Setting

Landform: Mountain backslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess and volcanic ash in the upper part

Slope range: 30 to 45 percent

Depth to restrictive feature: 40 to 60 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 10 inches; gravelly ashy loam

10 to 32 inches; very gravelly loam

32 to 57 inches; extremely stony loam

57 to 67 inches; weathered bedrock

Dissimilar Minor Components

Bocker soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Suta soils

Percentage of map unit: 5 percent

Major Use

Timber production

9—Quincy fine sand, 2 to 25 percent slopes, eroded

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 8

Elevation: 150 to 1,300 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Quincy and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Quincy**Setting**

Landform: Dunes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Sandy eolian deposits

Slope range: 2 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 4e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 10 inches; fine sand

10 to 60 inches; fine sand

Dissimilar Minor Component**Quinton soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

9B—Pird gravelly ashy loam, 8 to 30 percent slopes**Map Unit Setting**

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 4,000 to 5,900 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 36 to 42 degrees F

Frost-free period: 40 to 70 days

Map Unit Composition

Pird and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Pird

Setting

Landform: Mountain slopes

Aspect (representative): South

Aspect (range): Northeast to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash

Slope range: 8 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Subalpine fir/dwarf huckleberry (CES422)

Typical profile

0 to 9 inches; gravelly ashy loam

9 to 41 inches; very gravelly ashy loam

41 to 60 inches; very gravelly ashy loam

Dissimilar Minor Components

Grandpon soils

Percentage of map unit: 5 percent

Satus soils

Percentage of map unit: 5 percent

Major Use

Timber production

9C—Quincy-Rock outcrop complex, 25 to 60 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 8

Elevation: 150 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Quincy and similar soils: 60 percent

Rock outcrop: 35 percent

Dissimilar minor component: 5 percent

Characteristics of Quincy

Setting

Landform: Dunes

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Sandy eolian deposits

Slope range: 25 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 7e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 8 inches; sand

8 to 60 inches; fine sand

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 25 to 60 percent

Land capability subclass: 8s

Dissimilar Minor Component

Quinton soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

10—Pits, gravel

Description of areas: Open excavations, typically on valley floors, from which gravel and cobbles are removed without crushing

Land capability class: 8

10B—Andic Haplocryalfs, hilly

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 4,400 to 5,800 feet

Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 36 to 39 degrees F
Frost-free period: 40 to 70 days

Map Unit Composition

Andic Haplocryalfs and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Andic Haplocryalfs

Setting

Landform: Mountain slopes
Aspect (representative): Southwest
Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with volcanic ash
Slope range: 2 to 45 percent
Depth to restrictive feature: 10 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 12 inches; gravelly ashy loam
 12 to 27 inches; very gravelly ashy loam
 27 to 39 inches; very gravelly ashy loam
 39 to 43 inches; unweathered bedrock

Dissimilar Minor Components

Pird soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

11—Xerands, steep

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 700 to 2,400 feet
Mean annual precipitation: 20 to 45 inches

Mean annual air temperature: 43 to 50 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Xerands and similar soils: 100 percent

Characteristics of Xerands

Setting

Landform: Cinder cones

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Volcanic ash and cinders

Slope range: 25 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/mountain snowberry (CWS337)

Typical profile

0 to 8 inches; gravelly ashy sandy loam

8 to 36 inches; gravelly ashy sandy clay loam

36 to 60 inches; very gravelly ashy sandy clay loam

Major Use

Timber production

11A—Xerands, low precipitation, steep south slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,650 to 3,000 feet

Mean annual precipitation: 20 to 45 inches

Mean annual air temperature: 43 to 50 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Xerands and similar soils: 100 percent

Characteristics of Xerands

Setting

Landform: Cinder cones

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities*Parent material:* Volcanic ash and cinders*Slope range:* 25 to 45 percent*Depth to restrictive feature:* None within a depth of 60 inches*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* High (about 9.7 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 7e*Plant community class:* Grand fir/mountain snowberry (CWS337)**Typical profile**

0 to 8 inches; gravelly ashy sandy loam

8 to 36 inches; gravelly ashy sandy clay loam

36 to 60 inches; very gravelly ashy sandy clay loam

Major Use

Timber production

11B—Xerands, low precipitation, steep north slopes**Map Unit Setting***General landscape:* Uplands*Major land resource area (MLRA):* 6*Elevation:* 1,650 to 3,000 feet*Mean annual precipitation:* 20 to 45 inches*Mean annual air temperature:* 43 to 50 degrees F*Frost-free period:* 100 to 140 days**Map Unit Composition***Xerands and similar soils:* 100 percent**Characteristics of Xerands****Setting***Landform:* Cinder cones*Aspect (representative):* North*Aspect (range):* West to east (clockwise)**Properties and qualities***Parent material:* Volcanic ash and cinders*Slope range:* 25 to 45 percent*Depth to restrictive feature:* None within a depth of 60 inches*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/mountain snowberry (CWS337)

Typical profile

0 to 8 inches; gravelly ashy sandy loam

8 to 36 inches; gravelly ashy sandy clay loam

36 to 60 inches; very gravelly ashy sandy clay loam

Major Use

Timber production

11C—Xerands, cool, steep

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 2,500 to 4,250 feet

Mean annual precipitation: 20 to 45 inches

Mean annual air temperature: 43 to 50 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Xerands and similar soils: 100 percent

Characteristics of Xerands

Setting

Landform: Cinder cones

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Volcanic ash and cinders

Slope range: 25 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/mountain snowberry (CWS337)

Typical profile

0 to 8 inches; gravelly ashy sandy loam

8 to 36 inches; gravelly ashy sandy clay loam

36 to 60 inches; very gravelly ashy sandy clay loam

Major Use

Timber production

12—Legall cobbly loam, 5 to 30 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 600 to 2,000 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Legall and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Legall**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): Northeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 8 inches; cobbly loam

8 to 40 inches; very cobbly loam

40 to 60 inches; very cobbly clay loam

Dissimilar Minor Components**Gunn soils**

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Timber production

12A—Tekison-Rock outcrop complex, 30 to 65 percent slopes**Map Unit Setting**

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,700 to 3,200 feet

Mean annual precipitation: 16 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Tekison and similar soils: 65 percent

Rock outcrop: 30 percent

Dissimilar minor component: 5 percent

Characteristics of Tekison**Setting**

Landform: Mountain slopes

Aspect (representative): Southwest

Aspect (range): East to northwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 8 inches; stony loam

8 to 18 inches; gravelly clay loam

18 to 44 inches; extremely cobbly clay

44 to 60 inches; very cobbly clay loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 30 to 65 percent

Land capability subclass: 8s

Dissimilar Minor Component

Rock Creek soils

Percentage of map unit: 5 percent

Major Use

Timber production

12B—Maydol very stony loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 2,000 to 3,200 feet

Mean annual precipitation: 22 to 27 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Maydol and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Maydol

Setting

Landform: Dissected plateaus

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 5 inches; very stony loam

5 to 44 inches; gravelly loam

44 to 60 inches; very gravelly loam

Dissimilar Minor Components

Lyville soils

Percentage of map unit: 5 percent

Suta soils

Percentage of map unit: 5 percent

Major Use

Timber production

12C—Legall-Rock outcrop-Rubble land complex, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 200 to 3,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Legall and similar soils: 60 percent

Rock outcrop: 20 percent

Rubble land: 10 percent

Dissimilar minor components: 10 percent

Characteristics of Legall**Setting**

Landform: Canyonsides

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 8 inches; cobbly loam

8 to 40 inches; very cobbly loam

40 to 60 inches; very cobbly clay loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 30 to 65 percent

Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)

Slope range: 30 to 65 percent

Land capability subclass: 8s

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Use

Timber production

12D—Lyville bouldery loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 1,200 to 2,500 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Lyville and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Lyville

Setting

Landform: Canyonsides

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 20 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 7 inches; bouldery loam

7 to 13 inches; gravelly loam

13 to 27 inches; gravelly loam

27 to 44 inches; very gravelly loam

44 to 48 inches; unweathered bedrock

Dissimilar Minor Components**Gunn soils**

Percentage of map unit: 5 percent

Maydol soils

Percentage of map unit: 5 percent

Nook soils

Percentage of map unit: 5 percent

Major Use

Timber production

12E—Rock outcrop-Rubble land-Legall complex, 30 to 75 percent slopes***Map Unit Setting***

Major land resource area (MLRA): 6

Elevation: 200 to 3,000 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Rock outcrop: 45 percent

Rubble land: 30 percent

Legall and similar soils: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 30 to 75 percent

Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)

Slope range: 30 to 75 percent

Land capability subclass: 8s

Characteristics of Legall

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 8 inches; cobbly loam

8 to 40 inches; very cobbly loam

40 to 60 inches; very cobbly clay loam

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Use

Timber production

12F—Lyville-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 1,600 to 2,600 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Lyville and similar soils: 75 percent

Rock outcrop: 20 percent

Dissimilar minor component: 5 percent

Characteristics of Lyville

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 7 inches; bouldery loam

7 to 13 inches; gravelly loam

13 to 27 inches; gravelly loam

27 to 44 inches; very gravelly loam

44 to 48 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 30 to 65 percent

Land capability subclass: 8s

Dissimilar Minor Component

Gunn soils

Percentage of map unit: 5 percent

Major Use

Timber production

13B—Itat cobbly loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 1,300 to 3,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Itat and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Itat

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Residuum and colluvium derived from basalt mixed with a minor amount of loess and in some areas alluvium

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 3 inches; cobbly loam

3 to 21 inches; gravelly loam

21 to 31 inches; very gravelly loam

31 to 60 inches; extremely cobbly loam

Dissimilar Minor Components

Munset soils

Percentage of map unit: 10 percent

Landform: Depressions

Gunn soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

13C—Itat cobbly loam, 30 to 45 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 1,300 to 3,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Itat and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Itat**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum and colluvium derived from basalt mixed with a minor amount of loess and in some areas old alluvium

Slope range: 30 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 4 inches; cobbly loam

4 to 16 inches; gravelly loam

16 to 28 inches; very gravelly loam

28 to 60 inches; extremely cobbly loam

Dissimilar Minor Component**Rockly soils**

Percentage of map unit: 5 percent

Major Use

Timber production

14A—Rockly extremely stony loam, 2 to 15 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,300 to 3,400 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Rockly and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Rockly

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 15 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 5 inches; extremely stony loam

5 to 11 inches; very stony loam

11 to 15 inches; unweathered bedrock

Dissimilar Minor Components

Kiakus soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Wahoo soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

14B—Rockly very gravelly loam, 2 to 30 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 1,300 to 3,400 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Rockly and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Rockly

Setting

Landform: Plateaus

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 30 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Kiakus soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Wahoo soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

15—Rockly-Rock outcrop complex, 35 to 80 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 300 to 3,400 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Rockly and similar soils: 45 percent

Rock outcrop: 40 percent

Dissimilar minor components: 15 percent

Characteristics of Rockly

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 35 to 80 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 5 inches; extremely stony loam

5 to 11 inches; very stony loam

11 to 15 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 35 to 80 percent

Land capability subclass: 8s

Dissimilar Minor Components

Itat soils

Percentage of map unit: 5 percent

Kaiders soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

16—Sauter gravelly loam, 30 to 75 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 200 to 2,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 120 to 140 days

Map Unit Composition

Sauter and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Sauter

Setting

Landform: Canyonsides

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 6 inches; gravelly loam

6 to 19 inches; very gravelly loam

19 to 60 inches; very gravelly clay loam

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 5 percent

Mazdale soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Timber production

16B—Suta bouldery loam, 40 to 60 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 1,700 to 3,000 feet

Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Suta and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Suta

Setting

Landform: Canyonsides
Aspect (representative): Northwest
Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and volcanic ash
Slope range: 40 to 60 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 7 inches; bouldery loam
 7 to 42 inches; very gravelly loam
 42 to 46 inches; unweathered bedrock

Dissimilar Minor Components

Maydol soils

Percentage of map unit: 5 percent

Presher soils

Percentage of map unit: 5 percent

Quiden soils

Percentage of map unit: 5 percent

Major Use

Timber production

16C—Sauter-Rock outcrop-Rubble land complex, 30 to 75 percent slopes

Map Unit Setting

General landscape: Canyonlands
Major land resource area (MLRA): 6

Elevation: 200 to 2,200 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 120 to 140 days

Map Unit Composition

Sauter and similar soils: 65 percent
Rock outcrop: 15 percent
Rubble land: 10 percent
Dissimilar minor components: 10 percent

Characteristics of Sauter

Setting

Landform: Canyonsides
Aspect (representative): North
Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess
Slope range: 30 to 75 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 8 inches; gravelly loam
8 to 17 inches; very gravelly loam
17 to 60 inches; very gravelly loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock
Slope range: 30 to 75 percent
Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)
Slope range: 30 to 75 percent
Land capability subclass: 8s

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 5 percent

Mazdale soils*Percentage of map unit: 5 percent****Major Use***

Timber production

16E—Rock outcrop-Rubble land-Sauter complex, 30 to 75 percent slopes***Map Unit Setting****Major land resource area (MLRA): 6**Elevation: 200 to 2,200 feet**Mean annual precipitation: 18 to 25 inches**Mean annual air temperature: 46 to 48 degrees F**Frost-free period: 120 to 140 days****Map Unit Composition****Rock outcrop: 40 percent**Rubble land: 35 percent**Sauter and similar soils: 20 percent**Dissimilar minor component: 5 percent****Characteristics of Rock Outcrop****Description of areas: Exposures of various types of bare bedrock**Slope range: 30 to 75 percent**Land capability subclass: 8s****Characteristics of Rubble Land****Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)**Slope range: 30 to 75 percent**Land capability subclass: 8s****Characteristics of Sauter*****Setting***Landform: Canyonsides**Aspect (representative): North**Aspect (range): West to northeast (clockwise)***Properties and qualities***Parent material: Colluvium derived from basalt mixed with loess**Slope range: 30 to 75 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 10.5 inches)*

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 8 inches; gravelly loam

8 to 17 inches; very gravelly loam

17 to 60 inches; very gravelly loam

Dissimilar Minor Component**Mazdale soils**

Percentage of map unit: 5 percent

Major Use

Timber production

17A—Presher cobbly loam, 2 to 10 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 2,000 to 3,300 feet

Mean annual precipitation: 25 to 30 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Presher and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Presher**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Plant community class: Douglas-fir/kinnikinnick (bearberry) (CDS653)

Typical profile

0 to 6 inches; cobbly loam
 6 to 18 inches; gravelly loam
 18 to 60 inches; loam

Dissimilar Minor Components**Kaiders soils**

Percentage of map unit: 5 percent

Nook soils

Percentage of map unit: 5 percent

Major Use

Timber production

17B—Presher stony loam, 8 to 30 percent slopes***Map Unit Setting***

General landscape: Mountains
Major land resource area (MLRA): 6
Elevation: 2,000 to 3,300 feet
Mean annual precipitation: 25 to 30 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 120 days

Map Unit Composition

Presher and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Presher**Setting**

Landform: Mountain footslopes
Aspect (representative): Southwest
Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 8 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Douglas-fir/kinnikinnick (bearberry) (CDS653)

Typical profile

0 to 5 inches; stony loam
 5 to 13 inches; gravelly loam

13 to 44 inches; loam
44 to 60 inches; very gravelly loam

Dissimilar Minor Components

Kaiders soils

Percentage of map unit: 5 percent

Nook soils

Percentage of map unit: 5 percent

Suta soils

Percentage of map unit: 5 percent

Major Use

Timber production

17D—Quiden stony loam, 2 to 20 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 1,700 to 2,800 feet
Mean annual precipitation: 22 to 25 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 115 to 135 days

Map Unit Composition

Quiden and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Quiden

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 2 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 8.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 4e
Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 4 inches; stony loam

4 to 14 inches; loam

14 to 60 inches; gravelly loam

Dissimilar Minor Component**Nook soils**

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

18A—Kaiders stony loam, 5 to 30 percent slopes***Map Unit Setting***

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,800 to 3,100 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 130 days

Map Unit Composition

Kaiders and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Kaiders**Setting**

Landform: Mountain slopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with a minor amount of volcanic ash and loess

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 6 inches; stony loam

6 to 20 inches; gravelly loam

20 to 42 inches; gravelly loam

42 to 60 inches; very gravelly loam

Dissimilar Minor Components**Fanal soils**

Percentage of map unit: 5 percent

Munset soils

Percentage of map unit: 5 percent

Landform: Depressions

Major Use

Timber production

18B—Kaiders cobbly loam, 8 to 30 percent slopes***Map Unit Setting***

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 2,000 to 3,300 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 130 days

Map Unit Composition

Kaiders and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Kaiders**Setting**

Landform: Mountain slopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with a minor amount of volcanic ash and loess

Slope range: 8 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 6 inches; cobbly loam

6 to 20 inches; gravelly loam

20 to 42 inches; gravelly loam

42 to 60 inches; very gravelly loam

Dissimilar Minor Components

Munset soils

Percentage of map unit: 10 percent

Landform: Depressions

Gunn soils

Percentage of map unit: 5 percent

Major Use

Timber production

18C—Kaiders stony loam, 30 to 45 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,800 to 3,200 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 130 days

Map Unit Composition

Kaiders and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Kaiders

Setting

Landform: Mountain slopes

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with a minor amount of volcanic ash and loess

Slope range: 30 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Douglas-fir/common snowberry/pinegrass
(CDS638)

Typical profile

0 to 6 inches; stony loam

6 to 20 inches; gravelly loam

20 to 42 inches; gravelly loam

42 to 60 inches; very gravelly loam

Dissimilar Minor Components**Munset soils***Percentage of map unit:* 10 percent*Landform:* Depressions**Rock outcrop***Percentage of map unit:* 4 percent**Gunn soils***Percentage of map unit:* 3 percent**Leidl soils***Percentage of map unit:* 3 percent***Major Use***

Timber production

19—Kiakus-Munset-Wahoo complex, 0 to 30 percent slopes***Map Unit Setting****General landscape:* Uplands*Major land resource area (MLRA):* 8*Elevation:* 1,100 to 2,900 feet*Mean annual precipitation:* 18 to 25 inches*Mean annual air temperature:* 46 to 48 degrees F*Frost-free period:* 110 to 140 days***Map Unit Composition****Kiakus and similar soils:* 30 percent*Munset and similar soils:* 30 percent*Wahoo and similar soils:* 25 percent*Dissimilar minor components:* 15 percent***Characteristics of Kiakus*****Setting***Landform:* Dissected plateaus and canyon shoulder slopes*Aspect (representative):* South*Aspect (range):* East to west (clockwise)**Properties and qualities***Parent material:* Colluvium and residuum derived from basalt mixed with loess*Slope range:* 2 to 30 percent*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* Moderate (about 6.5 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 11 inches; silt loam
 11 to 28 inches; silty clay loam
 28 to 33 inches; gravelly clay loam
 33 to 37 inches; unweathered bedrock

Characteristics of Munset

Setting

Landform: Depressions of dissected plateaus
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Alluvium mixed with loess and residuum derived from basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: Frequent (see Water Features table)
Seasonal high water table (minimum depth): About 0 to 2 inches (see Water Features table)
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 5w
Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 2 inches; stony silt loam
 2 to 16 inches; silty clay loam
 16 to 22 inches; gravelly clay
 22 to 25 inches; extremely gravelly sandy clay loam
 25 to 35 inches; unweathered bedrock

Characteristics of Wahoo

Setting

Landform: Dissected plateaus and canyon shoulder slopes
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 2 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very low (about 1.7 inches)

Interpretive groups*Land capability subclass (nonirrigated): 6s**Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)***Typical profile**

0 to 5 inches; stony clay loam

5 to 12 inches; extremely stony clay loam

12 to 22 inches; unweathered bedrock

Dissimilar Minor Components**Rock outcrop***Percentage of map unit: 8 percent***Hyprairie soils***Percentage of map unit: 7 percent****Major Uses***

Livestock grazing and crop production

20—Nook silt loam, 0 to 5 percent slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 6**Elevation: 800 to 3,700 feet**Mean annual precipitation: 20 to 24 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 100 to 140 days****Map Unit Composition****Nook and similar soils: 90 percent**Dissimilar minor components: 10 percent****Characteristics of Nook*****Setting***Landform: Alluvial fans**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Alluvium derived from basalt and loess with a minor influence of volcanic ash**Slope range: 0 to 5 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Moderately well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: Occasional (see Water Features table)**Ponding frequency: None**Seasonal high water table (minimum depth): About 25 to 35 inches (see Water Features table)**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 10.5 inches)*

Interpretive groups*Land capability subclass (nonirrigated): 3w**Land capability subclass (irrigated): 3w**Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)***Typical profile**

0 to 10 inches; silt loam

10 to 25 inches; loam

25 to 60 inches; loam

Dissimilar Minor Components**Goldendale soils***Percentage of map unit: 5 percent***Munset soils***Percentage of map unit: 5 percent**Landform: Depressions****Major Uses***

Timber production and crop production

20A—Threecreeks silt loam, 0 to 3 percent slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 1,400 to 1,700 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 48 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Threecreeks and similar soils: 90 percent**Dissimilar minor components: 10 percent****Characteristics of Threecreeks*****Setting***Landform: Flood plains of plateaus**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Alluvium derived from basalt mixed with loess**Slope range: 0 to 3 percent**Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification**Drainage class: Moderately well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: Occasional (see Water Features table)**Ponding frequency: None**Seasonal high water table (minimum depth): About 24 to 41 inches (see Water Features table)**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 8.9 inches)*

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile

0 to 24 inches; silt loam

24 to 41 inches; sandy loam

41 to 60 inches; gravelly sand

Dissimilar Minor Components**Munset soils**

Percentage of map unit: 5 percent

Landform: Depressions

Riverwash

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

21—Rock outcrop-Rubble land complex, very steep***Map Unit Setting***

Major land resource area (MLRA): 8

Elevation: 100 to 4,150 feet

Map Unit Composition

Rock outcrop: 55 percent

Rubble land: 45 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 65 to 90 percent

Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)

Slope range: 65 to 90 percent

Land capability subclass: 8s

22—Fluventic Haploxerolls-Riverwash complex, nearly level***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 150 to 2,100 feet

Mean annual precipitation: 20 to 30 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Fluventic Haploxerolls and similar soils: 60 percent

Riverwash: 35 percent

Dissimilar minor component: 5 percent

Characteristics of Fluventic Haploxerolls

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: 10 to 60 inches to strongly contrasting textural stratification

Drainage class: Well drained or somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Frequent (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): About 40 to 72 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Ecological site: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 12 inches; sandy loam

12 to 26 inches; very gravelly loamy sand

26 to 40 inches; sandy loam

40 to 60 inches; gravelly sandy loam

Characteristics of Riverwash

Description of areas: Recent alluvial deposits of sand, silt, gravel, and cobbles

Landform: Flood plains

Slope range: 0 to 2 percent

Flooding frequency: Frequent most of the year

High water table: Present year round

Land capability class: 8

Dissimilar Minor Component

Munset soils

Percentage of map unit: 5 percent

Landform: Depressions

Major Uses

Crop production and timber production

23—Gunn loam, 2 to 8 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 300 to 2,700 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 150 days

Map Unit Composition

Gunn and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Gunn

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 3e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 6 inches; loam

6 to 18 inches; loam

18 to 60 inches; clay loam

Dissimilar Minor Components

Kiakus soils

Percentage of map unit: 3 percent

Itat soils

Percentage of map unit: 2 percent

Major Uses

Timber production and crop production

23A—Gunn stony loam, 8 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 500 to 2,700 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 150 days

Map Unit Composition

Gunn and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Gunn

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 8 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 5 inches; stony loam

5 to 33 inches; loam

33 to 60 inches; clay loam

Dissimilar Minor Components

Itat soils

Percentage of map unit: 5 percent

Kiakus soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

23B—Gunn loam, 8 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 300 to 2,700 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 150 days

Map Unit Composition

Gunn and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Gunn

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 8 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 15 inches; loam

15 to 32 inches; loam

32 to 60 inches; clay loam

Dissimilar Minor Components

Kiakus soils

Percentage of map unit: 5 percent

Wahoo soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

23C—Gunn stony loam, 0 to 8 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 500 to 2,700 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 100 to 150 days

Map Unit Composition

Gunn and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Gunn

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4s
Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 5 inches; stony loam
5 to 33 inches; loam
33 to 60 inches; clay loam

Dissimilar Minor Components

Legall soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

24—Rockly-Itat complex, 8 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,700 to 3,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Rockly and similar soils: 60 percent

Itat and similar soils: 30 percent

Dissimilar minor components: 10 percent

Characteristics of Rockly

Setting

Landform: Dissected plateaus

Aspect (representative): Southeast

Aspect (range): North to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 8 to 30 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Characteristics of Itat

Setting

Landform: Dissected plateaus

Aspect (representative): Southeast

Aspect (range): North to southwest (clockwise)

Properties and qualities

Parent material: Residium and colluvium derived from basalt mixed with a minor amount of loess and in some areas old alluvium

Slope range: 8 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 3 inches; cobbly loam
 3 to 20 inches; gravelly loam
 20 to 30 inches; very gravelly loam
 30 to 60 inches; extremely cobbly loam

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 5 percent

Kaiders soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing, crop production, and timber production

25—Leidl-Dillcourt-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General landscape: Canyonlands
Major land resource area (MLRA): 8
Elevation: 200 to 4,100 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Leidl and similar soils: 45 percent
Dillcourt and similar soils: 30 percent
Rock outcrop: 10 percent
Dissimilar minor components: 15 percent

Characteristics of Leidl

Setting

Landform: Canyonsides
Aspect (representative): South
Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash and loess in the upper part

Slope range: 30 to 75 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 15+ PZ (R006XY203WA)

Typical profile

0 to 5 inches; extremely cobbly ashy loam

5 to 12 inches; very gravelly ashy clay loam

12 to 25 inches; extremely gravelly clay loam

25 to 29 inches; unweathered bedrock

Characteristics of Dillcourt**Setting**

Landform: Canyonsides

Aspect (representative): South

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 15+ PZ (R006XY202WA)

Typical profile

0 to 12 inches; very cobbly loam

12 to 22 inches; very gravelly loam

22 to 60 inches; very cobbly loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 30 to 75 percent

Land capability subclass: 8s

Dissimilar Minor Components

Legall soils

Percentage of map unit: 8 percent

Oreoke soils

Percentage of map unit: 7 percent

Major Use

Livestock grazing

25A—Leidl extremely cobbly ashy loam, 2 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 300 to 2,300 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Leidl and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Leidl

Setting

Landform: Dissected plateaus

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash and loess in the upper part

Slope range: 2 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Ecological site: COOL STONY 15+ PZ (R006XY203WA)

Typical profile

0 to 7 inches; extremely cobbly ashy loam

7 to 24 inches; very gravelly clay loam

24 to 28 inches; unweathered bedrock

Dissimilar Minor Components**Lorena soils***Percentage of map unit: 5 percent***Rockly soils***Percentage of map unit: 5 percent****Major Use***

Livestock grazing

25B—Leidl-Oreoke complex, 30 to 75 percent slopes***Map Unit Setting****General landscape: Canyonlands**Major land resource area (MLRA): 8**Elevation: 200 to 3,000 feet**Mean annual precipitation: 18 to 25 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 140 days****Map Unit Composition****Leidl and similar soils: 50 percent**Oreoke and similar soils: 45 percent**Dissimilar minor component: 5 percent****Characteristics of Leidl*****Setting***Landform: Canyonsides**Aspect (representative): South**Aspect (range): East to west (clockwise)***Properties and qualities***Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash and loess in the upper part**Slope range: 30 to 75 percent**Depth to restrictive feature: 20 to 40 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Very low (about 2.6 inches)***Interpretive groups***Land capability subclass (nonirrigated): 7e**Ecological site: COOL STONY 15+ PZ (R006XY203WA)***Typical profile**

0 to 5 inches; extremely cobbly ashy loam

5 to 12 inches; very gravelly ashy clay loam

12 to 25 inches; extremely gravelly clay loam

25 to 29 inches; unweathered bedrock

Characteristics of Oreoke

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 5 inches; stony silt loam

5 to 15 inches; gravelly silt loam

15 to 22 inches; very gravelly silt loam

22 to 60 inches; very gravelly clay loam

Dissimilar Minor Component

Gwin soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

25C—Leidl-Dillcourt complex, 30 to 75 percent north slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 900 to 2,800 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Leidl and similar soils: 50 percent

Dillcourt and similar soils: 45 percent

Dissimilar minor component: 5 percent

Characteristics of Leidl

Setting

Landform: Canyonsides

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash and loess in the upper part

Slope range: 30 to 75 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 15+ PZ (R006XY203WA)

Typical profile

0 to 5 inches; extremely cobbly ashy loam

5 to 12 inches; very gravelly ashy clay loam

12 to 25 inches; extremely gravelly clay loam

25 to 29 inches; unweathered bedrock

Characteristics of Dillcourt

Setting

Landform: Canyonsides

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 15+ PZ (R006XY202WA)

Typical profile

0 to 12 inches; very cobbly loam
 12 to 22 inches; very gravelly loam
 22 to 60 inches; very cobbly loam

Dissimilar Minor Component**Gwin soils**

Percentage of map unit: 5 percent

Major Use

Livestock grazing

26—Mazdale very stony ashy loam, 30 to 75 percent slopes

Map Unit Setting

General landscape: Canyonlands
Major land resource area (MLRA): 6
Elevation: 900 to 2,800 feet
Mean annual precipitation: 25 to 30 inches
Mean annual air temperature: 45 to 47 degrees F
Frost-free period: 100 to 120 days

Map Unit Composition

Mazdale and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Mazdale**Setting**

Landform: Canyonsides
Aspect (representative): North
Aspect (range): Northwest to northeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt with an influence of volcanic ash in the upper part
Slope range: 30 to 75 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 6 inches; very stony ashy loam
 6 to 12 inches; gravelly ashy loam

12 to 28 inches; cobbly loam
 28 to 60 inches; very cobbly loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Sauter soils

Percentage of map unit: 5 percent

Major Use

Timber production

26C—Mazdale-Rock outcrop-Rubble land complex, 50 to 90 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 800 to 2,100 feet

Mean annual precipitation: 25 to 30 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Mazdale and similar soils: 60 percent

Rock outcrop: 20 percent

Rubble land: 15 percent

Dissimilar minor component: 5 percent

Characteristics of Mazdale

Setting

Landform: Canyonsides

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt with an influence of volcanic ash in the upper part

Slope range: 50 to 90 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 6 inches; very stony ashy loam
 6 to 12 inches; gravelly ashy loam
 12 to 28 inches; cobbly loam
 28 to 60 inches; very cobbly loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock
Slope range: 50 to 90 percent
Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)
Slope range: 50 to 90 percent
Land capability subclass: 8s

Dissimilar Minor Component**Sauter soils**

Percentage of map unit: 5 percent

Major Use

Timber production

26E—Rock outcrop-Rubble land-Mazdale complex, 50 to 90 percent slopes

Map Unit Setting

General landscape: Canyonlands
Major land resource area (MLRA): 6
Elevation: 800 to 2,100 feet
Mean annual precipitation: 25 to 30 inches
Mean annual air temperature: 45 to 47 degrees F
Frost-free period: 100 to 120 days

Map Unit Composition

Rock outcrop: 55 percent
Rubble land: 20 percent
Mazdale and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock
Slope range: 50 to 90 percent
Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)
Slope range: 50 to 90 percent
Land capability subclass: 8s

Characteristics of Mazdale

Setting

Landform: Canyonsides

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt with an influence of volcanic ash in the upper part

Slope range: 50 to 90 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 6 inches; very stony ashy loam

6 to 12 inches; gravelly ashy loam

12 to 28 inches; cobbly loam

28 to 60 inches; very cobbly loam

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Sauter soils

Percentage of map unit: 5 percent

Major Use

Timber production

27B—Yedlick stony ashy sandy loam, 8 to 30 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,100 to 1,900 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 90 to 110 days

Map Unit Composition

Yedlick and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Yedlick

Setting

Landform: Mountain slopes

Aspect (representative): East

Aspect (range): North to southeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash in the upper part

Slope range: 8 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Douglas-fir/bitterbrush/pinegrass (CDS675)

Typical profile

0 to 5 inches; stony ashy sandy loam

5 to 13 inches; gravelly ashy sandy loam

13 to 60 inches; very gravelly loam

Dissimilar Minor Components

Kaiders soils

Percentage of map unit: 7 percent

Trelk soils

Percentage of map unit: 8 percent

Major Use

Timber production

28—Trelk ashy loam, 2 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,300 to 1,600 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Trelk and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Trelk

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with volcanic ash in the upper part

Slope range: 2 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Douglas-fir/common snowberry/pinegrass (CDS638)

Typical profile

0 to 10 inches; ashy loam

10 to 17 inches; loam

17 to 33 inches; loam

33 to 60 inches; gravelly loam

Dissimilar Minor Components

Kaiders soils

Percentage of map unit: 5 percent

Yedlick soils

Percentage of map unit: 5 percent

Major Use

Timber production

30—Rockly-Kiakus complex, 2 to 8 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,600 to 3,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Rockly and similar soils: 55 percent

Kiakus and similar soils: 35 percent

Dissimilar minor components: 10 percent

Characteristics of Rockly

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 8 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Characteristics of Kiakus

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 8 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 21 inches; silt loam

21 to 38 inches; silty clay loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components**Gunn soils***Percentage of map unit: 5 percent***Itat soils***Percentage of map unit: 5 percent****Major Uses***

Livestock grazing and crop production

30A—Rockly-Lorena complex, 2 to 15 percent slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 1,300 to 2,900 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Rockly and similar soils: 50 percent**Lorena and similar soils: 40 percent**Dissimilar minor components: 10 percent****Characteristics of Rockly*****Setting***Landform: Plateaus**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash**Slope range: 2 to 15 percent**Depth to restrictive feature: 5 to 12 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Very low (about 0.8 inch)***Interpretive groups***Land capability subclass (nonirrigated): 7s**Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)***Typical profile**

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Characteristics of Lorena

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 33 inches; silt loam

33 to 37 inches; unweathered bedrock

Dissimilar Minor Components

Kiakus soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

30B—Rockly-Lorena complex, extremely stony, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 400 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Rockly and similar soils: 50 percent

Lorena and similar soils: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Rockly

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 15 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Characteristics of Lorena

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 17 inches; silt loam

17 to 32 inches; silt loam

32 to 36 inches; unweathered bedrock

Dissimilar Minor Components

Kiakus soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

32A—Beezee cobbly loam, low precipitation, 30 to 65 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 100 to 2,100 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 130 days

Map Unit Composition

Beezee and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Beezee

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 10 inches; cobbly loam

10 to 18 inches; very cobbly loam

18 to 33 inches; very cobbly loam

33 to 60 inches; cobbly loam

Dissimilar Minor Components**McGowan soils**

Percentage of map unit: 4 percent

Oreoke soils

Percentage of map unit: 3 percent

Underwood soils

Percentage of map unit: 3 percent

Major Use

Timber production

32B—Beezee cobbly loam, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 600 to 3,000 feet

Mean annual precipitation: 25 to 45 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 100 to 130 days

Map Unit Composition

Beezee and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Beezee**Setting**

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 10 inches; cobbly loam

10 to 18 inches; very cobbly loam

18 to 33 inches; very cobbly loam

33 to 60 inches; cobbly loam

Dissimilar Minor Components

Jebe soils

Percentage of map unit: 5 percent

Panak soils

Percentage of map unit: 5 percent

Major Use

Timber production

33—Riverwash

Description of areas: Recent alluvial deposits of sand, silt, gravel, and cobbles

Landform: Flood plains

Slope range: Less than 3 percent

Flooding frequency: Frequent most of the year

High water table: Present year round

Land capability class: 8

Major use: Wildlife habitat

33A—Haploxerolls-Fluvaquents complex, nearly level

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 7

Elevation: 250 to 1,500 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 150 to 190 days

Map Unit Composition

Haploxerolls and similar soils: 50 percent

Fluvaquents and similar soils: 50 percent

Characteristics of Haploxerolls

Setting

Landform: Low terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Occasional (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 3e

Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile

0 to 10 inches; fine sandy loam

10 to 24 inches; very gravelly sandy loam

24 to 41 inches; very cobbly sandy loam

41 to 60 inches; extremely cobbly sand

Characteristics of Fluvaquents

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Occasional (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): About 0 to 6 inches (see Water Features table)

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4w

Ecological site: WET MEADOW 9-15 PZ (R008XY601WA)

Typical profile

0 to 6 inches; silt loam

6 to 32 inches; silt loam

32 to 60 inches; gravelly sand

Major Uses

Livestock grazing and crop production

36—Jebe gravelly loam, 30 to 75 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 500 to 2,600 feet

Mean annual precipitation: 35 to 45 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 130 days

Map Unit Composition

Jebe and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Jebe

Setting

Landform: Canyonsides

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/Cascade Oregongrape/pinegrass (CWS226)

Typical profile

0 to 5 inches; gravelly loam

5 to 31 inches; very gravelly loam

31 to 60 inches; extremely gravelly clay loam

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

McGowan soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Use

Timber production

36C—Jebe-Rock outcrop-Rubble land complex, 50 to 90 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 600 to 2,800 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 110 to 130 days

Map Unit Composition

Jebe and similar soils: 40 percent
Rock outcrop: 20 percent
Rubble land: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Jebe

Setting

Landform: Canyonsides
Aspect (representative): Northwest
Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 50 to 90 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Grand fir/Cascade Oregongrape/pinegrass (CWS226)

Typical profile

0 to 5 inches; gravelly loam
5 to 31 inches; very gravelly loam
31 to 60 inches; extremely gravelly clay loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock
Slope range: 50 to 90 percent
Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)
Slope range: 50 to 90 percent
Land capability subclass: 8s

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 8 percent

McGowan soils*Percentage of map unit: 7 percent***Underwood soils***Percentage of map unit: 5 percent****Major Use***

Timber production

39A—Hyprairie silt loam, 2 to 5 percent slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 1,700 to 2,200 feet**Mean annual precipitation: 18 to 25 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 110 to 140 days****Map Unit Composition****Hyprairie and similar soils: 95 percent**Dissimilar minor component: 5 percent****Characteristics of Hyprairie*****Setting***Landform: Plateaus**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Loess over old alluvium**Slope range: 2 to 5 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 11.5 inches)***Interpretive groups***Land capability subclass (nonirrigated): 2e**Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)***Typical profile**

0 to 7 inches; silt loam

7 to 25 inches; silt loam

25 to 48 inches; silt loam

48 to 60 inches; gravelly clay loam

Dissimilar Minor Component**Kiakus soils***Percentage of map unit: 5 percent*

Major Uses

Crop production and timber production

39B—Hyprairie silt loam, 5 to 10 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,000 to 2,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Hyprairie and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Hyprairie**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over old alluvium

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 7 inches; silt loam

7 to 25 inches; silt loam

25 to 48 inches; silt loam

48 to 60 inches; gravelly clay loam

Dissimilar Minor Component**Kiakus soils**

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

39C—Hyprairie silt loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,000 to 2,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Hyprairie and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Hyprairie

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over old alluvium

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 16 inches; silt loam

16 to 23 inches; silt loam

23 to 40 inches; silt loam

40 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Kiakus soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

39D—Hyprairie silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,000 to 2,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Hyprairie and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Hyprairie

Setting

Landform: Hillslopes

Aspect (representative): Northwest

Aspect (range): Southwest to northeast (clockwise)

Properties and qualities

Parent material: Loess over old alluvium

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 16 inches; silt loam

16 to 23 inches; silt loam

23 to 40 inches; silt loam

40 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Kiakus soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

41—Oreoke-Legall complex, 30 to 75 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 200 to 3,000 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Oreoke and similar soils: 60 percent

Legall and similar soils: 35 percent

Dissimilar minor component: 5 percent

Characteristics of Oreoke

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): Northeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 5 inches; stony silt loam

5 to 15 inches; gravelly silt loam

15 to 22 inches; very gravelly silt loam

22 to 60 inches; very gravelly clay loam

Characteristics of Legall

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): Northeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 8 inches; cobbly loam

8 to 40 inches; very cobbly loam

40 to 60 inches; very cobbly clay loam

Dissimilar Minor Component

Rockly soils

Percentage of map unit: 5 percent

Major Use

Timber production

42—Oreoke-Beezee complex, 30 to 75 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 100 to 2,800 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 150 days

Map Unit Composition

Oreoke and similar soils: 50 percent

Beezee and similar soils: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Oreoke

Setting

Landform: Canyonsides

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 5 inches; stony silt loam

5 to 15 inches; gravelly silt loam

15 to 22 inches; very gravelly silt loam

22 to 60 inches; very gravelly clay loam

Characteristics of Beezee

Setting

Landform: Canyonsides

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 10 inches; cobbly loam

10 to 18 inches; very cobbly loam

18 to 33 inches; very cobbly loam

33 to 60 inches; cobbly loam

Dissimilar Minor Components

McGowan soils

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Use

Timber production

43—Oreoke-Colockum complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 800 to 2,400 feet

Mean annual precipitation: 12 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Map Unit Composition

Oreoke and similar soils: 50 percent

Colockum and similar soils: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Oreoke

Setting

Landform: Canyonsides

Aspect (representative): Northwest

Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 5 inches; stony silt loam

5 to 15 inches; gravelly silt loam

15 to 22 inches; very gravelly silt loam

22 to 60 inches; very gravelly clay loam

Characteristics of Colockum

Setting

Landform: Canyonsides

Aspect (representative): Northwest

Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Loess over mixed slope alluvium and colluvium derived from basalt

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 20 inches; silt loam

20 to 34 inches; silt loam

34 to 46 inches; silty clay loam

46 to 60 inches; gravelly silty clay loam

Dissimilar Minor Components

McGowan soils

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and timber production

49A—Kiakus silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kiakus and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Kiakus

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 16 inches; silt loam

16 to 29 inches; silty clay loam

29 to 38 inches; gravelly clay loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

Hyprairie soils

Percentage of map unit: 3 percent

Munset soils

Percentage of map unit: 2 percent

Landform: Depressions

Major Uses

Crop production and livestock grazing

49B—Kiakus silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kiakus and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Kiakus

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 16 inches; silt loam

16 to 29 inches; silty clay loam

29 to 38 inches; gravelly clay loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

Hyprairie soils

Percentage of map unit: 3 percent

Munset soils

Percentage of map unit: 2 percent

Landform: Depressions

Major Uses

Livestock grazing and crop production

49C—Kiakus silt loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 800 to 2,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kiakus and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Kiakus

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 10 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 16 inches; silt loam

16 to 29 inches; silty clay loam

29 to 38 inches; gravelly clay loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

Hyprairie soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

49D—Kiakus silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 800 to 2,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kiakus and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Kiakus

Setting

Landform: Shoulder slopes of plateaus

Aspect (representative): West

Aspect (range): Southeast to north (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 16 inches; silt loam

16 to 29 inches; silty clay loam

29 to 38 inches; gravelly clay loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 8 percent

Hyprairie soils

Percentage of map unit: 7 percent

Major Uses

Livestock grazing and crop production

49E—Kiakus-Rockly complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,600 to 2,300 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Kiakus and similar soils: 60 percent

Rockly and similar soils: 30 percent

Dissimilar minor components: 10 percent

Characteristics of Kiakus

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 16 inches; silt loam

16 to 29 inches; silty clay loam

29 to 38 inches; gravelly clay loam

38 to 42 inches; unweathered bedrock

Characteristics of Rockly

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 15 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Hyprairie soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

55—Firoke ashy fine sandy loam, 10 to 40 percent slopes, stony

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 3,200 to 4,200 feet

Mean annual precipitation: 40 to 55 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 70 to 95 days

Map Unit Composition

Firoke and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Firoke

Setting

Landform: Mountain slopes

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with volcanic ash

Slope range: 10 to 40 percent

Percentage of surface covered with rock fragments: 0.01 to 0.10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Grand fir/Cascade Oregongrape/pinegrass (CWS226)

Typical profile

0 to 6 inches; ashy fine sandy loam

6 to 19 inches; gravelly ashy fine sandy loam

19 to 60 inches; extremely cobbly ashy sandy loam

Dissimilar Minor Components

Kingtain soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Timber production

55A—Kingtain stony ashy loam, 8 to 45 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,600 to 3,900 feet

Mean annual precipitation: 45 to 55 inches

Mean annual air temperature: 38 to 45 degrees F

Frost-free period: 65 to 90 days

Map Unit Composition

Kingtain and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Kingtain

Setting

Landform: Mountain slopes

Aspect (representative): East

Aspect (range): Northeast to southeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with volcanic ash

Slope range: 8 to 45 percent

Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 2 inches; stony ashy loam

2 to 10 inches; gravelly ashy loam

10 to 49 inches; very gravelly ashy loam

49 to 60 inches; extremely cobbly loam

Dissimilar Minor Components

Firoke soils

Percentage of map unit: 4 percent

Rock outcrop

Percentage of map unit: 4 percent

Volash soils

Percentage of map unit: 4 percent

Sugarbowl soils*Percentage of map unit: 3 percent***Major Use**

Timber production

57—Firoke ashy fine sandy loam, 5 to 30 percent slopes, stony**Map Unit Setting***General landscape: Mountains**Major land resource area (MLRA): 6**Elevation: 1,800 to 3,600 feet**Mean annual precipitation: 40 to 55 inches**Mean annual air temperature: 39 to 45 degrees F**Frost-free period: 70 to 95 days***Map Unit Composition***Firoke and similar soils: 90 percent**Dissimilar minor components: 10 percent***Characteristics of Firoke****Setting***Landform: Mountain slopes**Aspect (representative): Southwest**Aspect (range): Southeast to west (clockwise)***Properties and qualities***Parent material: Colluvium derived from basalt mixed with volcanic ash**Slope range: 5 to 30 percent**Percentage of surface covered with rock fragments: 0.01 to 0.10 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 7 inches)***Interpretive groups***Land capability subclass (nonirrigated): 4e**Plant community class: Grand fir/Cascade Oregongrape/pinegrass (CWS226)***Typical profile**

0 to 6 inches; ashy fine sandy loam

6 to 19 inches; gravelly ashy fine sandy loam

19 to 60 inches; extremely cobbly ashy sandy loam

Dissimilar Minor Components**Kingtain soils***Percentage of map unit: 5 percent*

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Timber production

59B—Bercumb cobbly ashy loam, 5 to 30 percent slopes***Map Unit Setting***

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,700 to 3,100 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 70 to 95 days

Map Unit Composition

Bercumb and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Bercumb**Setting**

Landform: Mountain footslopes and summits

Aspect (representative): West

Aspect (range): South to northwest (clockwise)

Properties and qualities

Parent material: Residuum and colluvium derived from basalt mixed with volcanic ash in the upper part

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 4 inches; cobbly ashy loam

4 to 10 inches; gravelly ashy loam

10 to 29 inches; gravelly loam

29 to 53 inches; very gravelly loam

53 to 60 inches; very cobbly loam

Dissimilar Minor Components**Kingtain soils**

Percentage of map unit: 10 percent

Beezee soils

Percentage of map unit: 5 percent

Major Use

Timber production

59C—Bercumb cobbly ashy loam, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,400 to 3,100 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 70 to 95 days

Map Unit Composition

Bercumb and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Bercumb**Setting**

Landform: Mountain backslopes

Aspect (representative): West

Aspect (range): South to northwest (clockwise)

Properties and qualities

Parent material: Residuum and colluvium derived from basalt mixed with volcanic ash in the upper part

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 3 inches; cobbly ashy loam

3 to 11 inches; gravelly ashy loam

11 to 30 inches; gravelly loam

30 to 60 inches; very gravelly loam

Dissimilar Minor Components**Kingtain soils**

Percentage of map unit: 10 percent

Beezee soils

Percentage of map unit: 5 percent

Major Use

Timber production

59D—Bercumb cobbly ashy loam, 30 to 75 percent north slopes***Map Unit Setting***

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,400 to 3,100 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 70 to 95 days

Map Unit Composition

Bercumb and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Bercumb**Setting**

Landform: Mountain backslopes

Aspect (representative): Northwest

Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Residuum and colluvium derived from basalt mixed with volcanic ash in the upper part

Slope range: 30 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 6 inches; cobbly ashy loam

6 to 12 inches; gravelly ashy loam

12 to 28 inches; gravelly loam

28 to 60 inches; very gravelly loam

Dissimilar Minor Components

Beezee soils

Percentage of map unit: 7 percent

Rock outcrop

Percentage of map unit: 7 percent

Kingtain soils

Percentage of map unit: 6 percent

Major Use

Timber production

61—Grayland silty clay loam, 0 to 1 percent slopes

Map Unit Setting

General landscape: Lake plains

Major land resource area (MLRA): 6

Elevation: 2,200 to 2,300 feet

Mean annual precipitation: 33 to 37 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 50 to 90 days

Map Unit Composition

Grayland and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Grayland

Setting

Landform: Lacustrine terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits and alluvium derived from basalt and volcanic ash

Slope range: 0 to 1 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: Frequent (see Water Features table)

Seasonal high water table (minimum depth): About 0 to 4 inches (see Water Features table)

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 5w

Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 8 inches; silty clay loam

8 to 15 inches; silty clay loam

15 to 24 inches; clay
24 to 60 inches; sandy loam

Dissimilar Minor Component

Fanal soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

63—Fanal ashy sandy loam, 2 to 8 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 1,800 to 2,400 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Fanal and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Fanal

Setting

Landform: Toeslopes of hills

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt with an influence of volcanic ash in the upper part

Slope range: 2 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Moderately well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): About 31 to 44 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Plant community class: Grand fir/common snowberry/pinegrass (CWS336)

Typical profile

0 to 4 inches; ashy sandy loam

4 to 12 inches; gravelly ashy sandy loam

12 to 44 inches; sandy loam

44 to 60 inches; sandy loam

Dissimilar Minor Components

Grayland soils

Percentage of map unit: 5 percent

Kaiders soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

65—Leidl extremely cobbly ashy loam, 30 to 75 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 6

Elevation: 400 to 2,700 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Leidl and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Leidl

Setting

Landform: Canyonsides

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash and loess in the upper part

Slope range: 30 to 75 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 15+ PZ (R006XY203WA)

Typical profile

0 to 5 inches; extremely cobbly ashy loam

5 to 12 inches; very gravelly ashy clay loam

12 to 25 inches; extremely gravelly clay loam
 25 to 29 inches; unweathered bedrock

Dissimilar Minor Component

Kaiders soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

65B—Dystroxerepts, very steep

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 600 to 4,000 feet

Mean annual precipitation: 55 to 65 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 80 to 90 days

Map Unit Composition

Dystroxerepts and similar soils: 100 percent

Characteristics of Dystroxerepts

Setting

Landform: Backslopes of mountains

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash

Slope range: 30 to 75 percent

Depth to restrictive feature: 10 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Typical profile

0 to 4 inches; very cobbly ashy loam

4 to 10 inches; extremely cobbly loam

10 to 20 inches; extremely cobbly loam

20 to 24 inches; unweathered bedrock

Major Use

Wildlife habitat

66—Flotag gravelly ashy sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 1,600 to 2,000 feet
Mean annual precipitation: 47 to 53 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 90 to 110 days

Map Unit Composition

Flotag and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Flotag

Setting

Landform: Low terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Mudflow deposits derived from mixed volcanic ash and basaltic and andesitic sand and gravel
Slope range: 0 to 2 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): About 56 to 60 inches (see Water Features table)
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2s
Land capability subclass (irrigated): 2s
Plant community class: Grand fir/common snowberry/pinegrass (CWS336)

Typical profile

0 to 19 inches; gravelly ashy sandy loam
 19 to 34 inches; gravelly ashy sandy loam
 34 to 60 inches; gravelly loam

Dissimilar Minor Component

Trouter soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

68—Fluvaquentic Endoaquolls, nearly level

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,300 to 3,800 feet

Mean annual precipitation: 50 to 55 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 95 to 105 days

Map Unit Composition

Fluvaquentic Endoaquolls and similar soils: 100 percent

Characteristics of Fluvaquentic Endoaquolls

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Frequent (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): About 0 to 6 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 5w

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 20 inches; loam

20 to 30 inches; sandy loam

30 to 60 inches; stratified very gravelly loamy sand to gravelly loam

Major Uses

Timber production and crop production

69—Goldendale silt loam, basalt substratum, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,700 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Goldendale

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash
Slope range: 2 to 5 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 10 inches; silt loam
 10 to 15 inches; silt loam
 15 to 45 inches; clay loam
 45 to 49 inches; unweathered bedrock

Dissimilar Minor Components

Blockhouse soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

69A—Goldendale silt loam, basalt substratum, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 1,400 to 2,700 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Goldendale

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash
Slope range: 5 to 10 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 10 inches; silt loam
10 to 15 inches; silt loam
15 to 45 inches; clay loam
45 to 49 inches; unweathered bedrock

Dissimilar Minor Components

Blockhouse soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

69B—Goldendale silt loam, basalt substratum, 10 to 15 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 10 to 15 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 15 inches; silt loam

15 to 45 inches; clay loam

45 to 49 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils**

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

69C—Goldendale silt loam, basalt substratum, 15 to 30 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Goldendale**Setting**

Landform: Hillslopes

Aspect (representative): Southwest

Aspect (range): South to southwest (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 15 inches; silt loam

15 to 45 inches; clay loam

45 to 49 inches; unweathered bedrock

Dissimilar Minor Components**Blockhouse soils**

Percentage of map unit: 5 percent

Leidl soils*Percentage of map unit: 5 percent***Lorena soils***Percentage of map unit: 5 percent***Major Uses**

Livestock grazing and crop production

72—Aqualfs, nearly level**Map Unit Setting***General landscape: Valleys**Major land resource area (MLRA): 6**Elevation: 1,800 to 3,000 feet**Mean annual precipitation: 30 to 40 inches**Mean annual air temperature: 45 to 46 degrees F**Frost-free period: 70 to 90 days***Map Unit Composition***Aqualfs and similar soils: 95 percent**Dissimilar minor component: 5 percent***Characteristics of Aqualfs****Setting***Landform: Alluvial fans**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Alluvium**Slope range: 0 to 2 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Poorly drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: Frequent (see Water Features table)**Seasonal high water table (minimum depth): About 0 to 6 inches (see Water Features table)**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 10.8 inches)***Interpretive groups***Land capability subclass (nonirrigated): 5w**Ecological site: WET MEADOW 15+ PZ (R009XY601WA)***Typical profile**

0 to 6 inches; loam

6 to 13 inches; silty clay loam

13 to 27 inches; silty clay loam

27 to 60 inches; sandy clay loam

Dissimilar Minor Component**Fanal soils***Percentage of map unit: 5 percent*

Major Use

Livestock grazing

73A—Dalig loam, 2 to 8 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,100 to 2,500 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Dalig and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Dalig**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 15 inches; loam

15 to 60 inches; clay loam

Dissimilar Minor Components**Aqualfs**

Percentage of map unit: 5 percent

Kaiders soils

Percentage of map unit: 5 percent

Major Use

Timber production

73B—Dalig loam, 8 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,100 to 2,500 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Dalig and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Dalig

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 15 inches; loam

15 to 60 inches; clay loam

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 5 percent

Kaiders soils

Percentage of map unit: 5 percent

Major Use

Timber production

73C—Dalig loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 1,100 to 2,500 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Dalig and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Dalig

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 15 inches; loam

15 to 60 inches; clay loam

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 5 percent

Kaiders soils

Percentage of map unit: 5 percent

Legall soils

Percentage of map unit: 5 percent

Major Use

Timber production

74A—Tigit ashy loam, 2 to 8 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,600 to 2,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 130 days

Map Unit Composition

Tigit and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Tigit

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum and colluvium derived from basalt mixed with a minor amount of volcanic ash in the upper part

Slope range: 2 to 8 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Grand fir/common snowberry/pinegrass (CWS336)

Typical profile

0 to 6 inches; ashy loam

6 to 15 inches; loam

15 to 39 inches; very paragravelly loam

39 to 49 inches; weathered bedrock

Dissimilar Minor Component

Aqualfs

Percentage of map unit: 5 percent

Major Use

Timber production

74B—Tigit ashy loam, 8 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,600 to 2,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 130 days

Map Unit Composition

Tigit and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Tigit**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum and colluvium derived from basalt mixed with a minor amount of volcanic ash in the upper part

Slope range: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Grand fir/common snowberry/pinegrass (CWS336)

Typical profile

0 to 6 inches; ashy loam

6 to 15 inches; loam

15 to 39 inches; very paragravelly loam

39 to 49 inches; weathered bedrock

Dissimilar Minor Component**Underwood soils**

Percentage of map unit: 5 percent

Major Use

Timber production

74C—Tigit ashy loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 1,600 to 2,500 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 130 days

Map Unit Composition

Tigit and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Tigit

Setting

Landform: Dissected plateaus
Aspect (representative): South
Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Residuum and colluvium derived from basalt mixed with a minor amount of volcanic ash in the upper part
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Grand fir/common snowberry/pinegrass (CWS336)

Typical profile

0 to 6 inches; ashy loam
 6 to 15 inches; loam
 15 to 39 inches; very paragravelly loam
 39 to 49 inches; weathered bedrock

Dissimilar Minor Component

Underwood soils

Percentage of map unit: 5 percent

Major Use

Timber production

76—Underwood ashy loam, 2 to 8 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 400 to 2,800 feet

Mean annual precipitation: 35 to 65 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 130 days

Map Unit Composition

Underwood and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Underwood

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 2 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 3e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 7 inches; ashy loam

7 to 37 inches; gravelly loam

37 to 60 inches; very paragravelly loam

Dissimilar Minor Component

Tigit soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

76A—Underwood ashy loam, 8 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 400 to 2,800 feet

Mean annual precipitation: 35 to 65 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 130 days

Map Unit Composition

Underwood and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Underwood

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence volcanic ash in the upper part

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 7 inches; ashy loam

7 to 37 inches; gravelly loam

37 to 60 inches; very paragravelly loam

Dissimilar Minor Component

Tigit soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

76B—Underwood ashy loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 400 to 2,800 feet

Mean annual precipitation: 35 to 65 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 130 days

Map Unit Composition

Underwood and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Underwood

Setting

Landform: Footslopes of mountains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 7 inches; ashy loam

7 to 37 inches; gravelly loam

37 to 60 inches; very paragravelly loam

Dissimilar Minor Component

Tigit soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

76C—Underwood gravelly ashy loam, 30 to 50 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 400 to 2,800 feet

Mean annual precipitation: 35 to 65 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 130 days

Map Unit Composition

Underwood and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Underwood

Setting

Landform: Backslopes of mountains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 30 to 50 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 14 inches; gravelly ashy loam

14 to 60 inches; gravelly loam

Dissimilar Minor Component

Tigit soils

Percentage of map unit: 5 percent

Major Use

Timber production

77—McGowan ashy loam, 8 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 600 to 2,600 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 140 days

Map Unit Composition

McGowan and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of McGowan

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 10 inches; ashy loam
10 to 15 inches; clay loam
15 to 42 inches; clay loam
42 to 60 inches; clay loam

Dissimilar Minor Components

Tigit soils

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

77A—McGowan ashy loam, 2 to 8 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 600 to 2,600 feet

Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 140 days

Map Unit Composition

McGowan and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of McGowan

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part
Slope range: 2 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 3e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 10 inches; ashy loam
 10 to 15 inches; clay loam
 15 to 42 inches; clay loam
 42 to 60 inches; clay loam

Dissimilar Minor Components

Tigit soils

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

80—Troutlake ashy loam, 1 to 5 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6
Elevation: 1,500 to 2,950 feet

Mean annual precipitation: 50 to 55 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 80 to 90 days

Map Unit Composition

Troutlake and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Troutlake

Setting

Landform: Toeslopes of hills
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with volcanic ash
Slope range: 1 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 10 inches; ashy loam
10 to 21 inches; ashy loam
21 to 60 inches; ashy clay loam

Dissimilar Minor Components

Flotag soils

Percentage of map unit: 5 percent

Trouter soils

Percentage of map unit: 5 percent

Volash soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

81—Sugarbowl ashy loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6

Elevation: 2,000 to 3,600 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 75 to 95 days

Map Unit Composition

Sugarbowl and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Sugarbowl

Setting

Landform: Hillslopes
Aspect (representative): Southeast
Aspect (range): Northeast to southwest (clockwise)

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with volcanic ash
Slope range: 5 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 9.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Grand fir/vanillaleaf (CWS524)

Typical profile

0 to 4 inches; ashy loam
 4 to 41 inches; ashy loam
 41 to 60 inches; gravelly ashy loam

Dissimilar Minor Components

Firoke soils

Percentage of map unit: 5 percent

Kingtain soils

Percentage of map unit: 5 percent

Major Use

Timber production

82B—Kingtain gravelly ashy loam, 8 to 30 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6
Elevation: 1,600 to 4,300 feet
Mean annual precipitation: 45 to 55 inches

Mean annual air temperature: 38 to 45 degrees F

Frost-free period: 65 to 90 days

Map Unit Composition

Kingtain and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Kingtain

Setting

Landform: Mountain slopes

Aspect (representative): Southeast

Aspect (range): North to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with volcanic ash

Slope range: 8 to 30 percent

Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 15 inches; gravelly ashy loam

15 to 49 inches; very gravelly ashy loam

49 to 60 inches; extremely cobbly loam

Dissimilar Minor Components

Firoke soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Sugarbowl soils

Percentage of map unit: 5 percent

Major Use

Timber production

82D—Kingtain cobbly ashy loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,600 to 4,300 feet

Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 38 to 45 degrees F
Frost-free period: 65 to 90 days

Map Unit Composition

Kingtain and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Kingtain

Setting

Landform: Mountain slopes
Aspect (representative): East
Aspect (range): North to southeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with volcanic ash
Slope range: 30 to 65 percent
Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 16 inches; cobbly ashy loam
 16 to 49 inches; gravelly ashy loam
 49 to 60 inches; extremely cobbly loam

Dissimilar Minor Components

Firoke soils

Percentage of map unit: 8 percent

Rock outcrop

Percentage of map unit: 7 percent

Sugarbowl soils

Percentage of map unit: 5 percent

Major Use

Timber production

82E—Kingtain-Rock outcrop complex, 30 to 75 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6

Elevation: 1,600 to 4,300 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 38 to 45 degrees F
Frost-free period: 65 to 90 days

Map Unit Composition

Kingtain and similar soils: 70 percent
Rock outcrop: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Kingtain

Setting

Landform: Mountain slopes
Aspect (representative): Northeast
Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with volcanic ash
Slope range: 30 to 75 percent
Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 12 inches; stony ashy loam
12 to 49 inches; gravelly ashy loam
49 to 60 inches; extremely cobbly loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock
Slope range: 30 to 75 percent
Land capability subclass: 8s

Dissimilar Minor Components

Firoke soils

Percentage of map unit: 5 percent

Sugarbowl soils

Percentage of map unit: 5 percent

Major Use

Timber production

83—Volash ashy loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 52 to 57 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 75 to 95 days

Map Unit Composition

Volash and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Volash

Setting

Landform: Plains
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Volcanic ash over basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 12 inches; ashy loam
 12 to 25 inches; ashy loam
 25 to 48 inches; ashy loam
 48 to 52 inches; unweathered bedrock

Dissimilar Minor Components

Kingtain soils

Percentage of map unit: 5 percent

Trouter soils

Percentage of map unit: 5 percent

Major Use

Timber production

84—Trouter stony ashy loam, 2 to 8 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 1,400 to 2,000 feet
Mean annual precipitation: 48 to 52 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 85 to 110 days

Map Unit Composition

Trouter and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Troutier

Setting

Landform: Valleys
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Volcanic ash over basalt
Slope range: 2 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4s
Plant community class: Douglas-fir/kinnikinnick (bearberry)/bitterbrush (CDS654)

Typical profile

0 to 4 inches; stony ashy loam
4 to 29 inches; ashy loam
29 to 33 inches; unweathered bedrock

Dissimilar Minor Components

Flotag soils

Percentage of map unit: 5 percent

Troutlake soils

Percentage of map unit: 5 percent

Volash soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

84A—Trout-Rock outcrop complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,400 to 2,000 feet

Mean annual precipitation: 0 to 52 inches

Mean annual air temperature: 32 to 48 degrees F

Frost-free period: 85 to 110 days

Map Unit Composition

Trout and similar soils: 70 percent

Rock outcrop: 20 percent

Dissimilar minor components: 10 percent

Characteristics of Trout

Setting

Landform: Valleys

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Volcanic ash over basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 4e

Plant community class: Douglas-fir/kinnikinnick (bearberry)/bitterbrush (CDS654)

Typical profile

0 to 4 inches; stony ashy loam

4 to 29 inches; ashy loam

29 to 33 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 2 to 15 percent

Land capability subclass: 8s

Dissimilar Minor Components**Troutlake soils**

Percentage of map unit: 5 percent

Volash soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

86A—Chemawa ashy loam, 2 to 8 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 600 to 2,100 feet

Mean annual precipitation: 45 to 65 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 160 days

Map Unit Composition

Chemawa and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Chemawa**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Volcanic ash

Slope range: 2 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Plant community class: Grand fir/vanillaleaf (CWS524)

Typical profile

0 to 26 inches; ashy loam

26 to 60 inches; ashy silt loam

Dissimilar Minor Component**Timberhead soils**

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

86B—Chemawa ashy loam, 8 to 15 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 600 to 2,100 feet

Mean annual precipitation: 45 to 65 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 160 days

Map Unit Composition

Chemawa and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Chemawa**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Volcanic ash

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Grand fir/vanillaleaf (CWS524)

Typical profile

0 to 26 inches; ashy loam

26 to 60 inches; ashy silt loam

Dissimilar Minor Component**Timberhead soils**

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

86C—Chemawa ashy loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 500 to 2,200 feet

Mean annual precipitation: 45 to 65 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 160 days

Map Unit Composition

Chemawa and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Chemawa

Setting

Landform: Terrace escarpments

Aspect (representative): East

Aspect (range): North to southeast (clockwise)

Properties and qualities

Parent material: Volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Grand fir/vanillaleaf (CWS524)

Typical profile

0 to 26 inches; ashy loam

26 to 60 inches; ashy silt loam

Dissimilar Minor Components

Timberhead soils

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

86D—Chemawa gravelly ashy loam, 30 to 45 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 500 to 2,200 feet

Mean annual precipitation: 45 to 65 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 160 days

Map Unit Composition

Chemawa and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Chemawa

Setting

Landform: Terrace escarpments

Aspect (representative): East

Aspect (range): North to southeast (clockwise)

Properties and qualities

Parent material: Volcanic ash

Slope range: 30 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Grand fir/vanillaleaf (CWS524)

Typical profile

0 to 26 inches; gravelly ashy loam

26 to 60 inches; gravelly ashy loam

Dissimilar Minor Components

McElroy soils

Percentage of map unit: 5 percent

Timberhead soils

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Use

Timber production

87A—Eagreek paragravelly loam, 15 to 50 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 1,800 to 2,300 feet

Mean annual precipitation: 42 to 47 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 130 days

Map Unit Composition

Eagreek and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Eagreek**Setting**

Landform: Dissected plateaus

Aspect (representative): Northwest

Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from tuff, breccia, and dacite

Slope range: 15 to 50 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 19 inches; paragravelly loam

19 to 60 inches; very paragravelly loam

Dissimilar Minor Component**Chemawa soils**

Percentage of map unit: 5 percent

Major Use

Timber production

88A—Timberhead gravelly ashy loam, 5 to 30 percent slopes***Map Unit Setting***

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,400 to 4,000 feet
Mean annual precipitation: 50 to 65 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Timberhead and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Timberhead

Setting

Landform: Mountain slopes
Aspect (representative): East
Aspect (range): Northeast to southeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash
Slope range: 5 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 28 inches; gravelly ashy loam
 28 to 42 inches; gravelly ashy loam
 42 to 60 inches; extremely paragravelly ashy loam

Dissimilar Minor Components

Chemawa soils

Percentage of map unit: 5 percent

McElroy soils

Percentage of map unit: 5 percent

Major Use

Timber production

88B—Timberhead gravelly ashy loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6
Elevation: 1,400 to 3,600 feet

Mean annual precipitation: 50 to 65 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 90 to 120 days

Map Unit Composition

Timberhead and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Timberhead

Setting

Landform: Mountain slopes
Aspect (representative): Southeast
Aspect (range): Northeast to south (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 28 inches; gravelly ashy loam
28 to 42 inches; gravelly ashy loam
42 to 60 inches; extremely paragravelly ashy loam

Dissimilar Minor Components

Chemawa soils

Percentage of map unit: 5 percent

McElroy soils

Percentage of map unit: 5 percent

Major Use

Timber production

89—McElroy gravelly ashy loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6
Elevation: 600 to 3,000 feet
Mean annual precipitation: 45 to 65 inches
Mean annual air temperature: 45 to 47 degrees F
Frost-free period: 100 to 130 days

Map Unit Composition

McElroy and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of McElroy

Setting

Landform: Mountain slopes

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash in the upper part

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 11 inches; gravelly ashy loam

11 to 23 inches; gravelly loam

23 to 60 inches; very gravelly loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Timberhead soils

Percentage of map unit: 5 percent

Major Use

Timber production

89B—McElroy-Rock outcrop complex, 50 to 90 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 700 to 2,800 feet

Mean annual precipitation: 45 to 65 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 100 to 130 days

Map Unit Composition

McElroy and similar soils: 75 percent

Rock outcrop: 15 percent

Dissimilar minor components: 10 percent

Characteristics of McElroy**Setting**

Landform: Mountain slopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash in the upper part

Slope range: 50 to 90 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 11 inches; gravelly ashy loam

11 to 23 inches; gravelly loam

23 to 60 inches; very gravelly loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 50 to 90 percent

Land capability subclass: 8s

Dissimilar Minor Components**Timberhead soils**

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Use

Timber production

90—Hood loam, 3 to 8 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 100 to 1,000 feet
Mean annual precipitation: 30 to 45 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 115 to 130 days

Map Unit Composition

Hood and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Hood

Setting

Landform: Dissected terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 15 inches; loam
 15 to 60 inches; silt loam

Dissimilar Minor Components

Husum soils

Percentage of map unit: 5 percent

McElroy soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

90A—Hood loam, 8 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 100 to 1,000 feet
Mean annual precipitation: 30 to 45 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 115 to 130 days

Map Unit Composition

Hood and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Hood

Setting

Landform: Dissected terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 15 inches; loam

15 to 60 inches; silt loam

Dissimilar Minor Components

Husum soils

Percentage of map unit: 5 percent

McElroy soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

90B—Hood loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 100 to 1,000 feet

Mean annual precipitation: 30 to 45 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 115 to 130 days

Map Unit Composition

Hood and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Hood

Setting

Landform: Terrace escarpments

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 10 inches; loam

10 to 60 inches; silt loam

Dissimilar Minor Components

Husum soils

Percentage of map unit: 5 percent

McElroy soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

90C—Hood loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 100 to 1,000 feet

Mean annual precipitation: 30 to 45 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 115 to 130 days

Map Unit Composition

Hood and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Hood**Setting***Landform:* Terrace escarpments*Aspect (representative):* North*Aspect (range):* All aspects**Properties and qualities***Parent material:* Lacustrine deposits*Slope range:* 30 to 65 percent*Depth to restrictive feature:* None within a depth of 60 inches*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* High (about 12 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 7e*Plant community class:* Grand fir/vine maple (CWS551)**Typical profile**

0 to 7 inches; loam

7 to 60 inches; silt loam

Dissimilar Minor Components**Husum soils***Percentage of map unit:* 5 percent**McElroy soils***Percentage of map unit:* 5 percent**Major Use**

Timber production

92—Husum gravelly ashly loam, 0 to 5 percent slopes**Map Unit Setting***General landscape:* River valleys*Major land resource area (MLRA):* 6*Elevation:* 250 to 900 feet*Mean annual precipitation:* 35 to 45 inches*Mean annual air temperature:* 47 to 50 degrees F*Frost-free period:* 105 to 120 days**Map Unit Composition***Husum and similar soils:* 95 percent*Dissimilar minor component:* 5 percent**Characteristics of Husum****Setting***Landform:* Terraces*Aspect (representative):* North*Aspect (range):* All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with volcanic ash

Slope range: 0 to 5 percent

Depth to restrictive feature: 24 to 36 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Rare

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 10 inches; gravelly ashy loam

10 to 28 inches; very gravelly ashy loam

28 to 60 inches; extremely cobbly loamy sand

Dissimilar Minor Component**Hood soils**

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

92A—Husum gravelly ashy loam, 5 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 400 to 1,400 feet

Mean annual precipitation: 35 to 45 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 105 to 120 days

Map Unit Composition

Husum and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Husum**Setting**

Landform: Alluvial fans

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with volcanic ash

Slope range: 5 to 15 percent

Depth to restrictive feature: 24 to 36 inches to strongly contrasting textural stratification

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 15 inches; gravelly ashy loam
 15 to 36 inches; very gravelly ashy loam
 36 to 60 inches; extremely cobbly loamy sand

Dissimilar Minor Component

Hood soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

92B—Husum gravelly ashy loam, nonflooded, 0 to 5 percent slopes

Map Unit Setting

General landscape: River valleys
Major land resource area (MLRA): 6
Elevation: 400 to 1,400 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 105 to 120 days

Map Unit Composition

Husum and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Husum

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with volcanic ash
Slope range: 0 to 5 percent
Depth to restrictive feature: 24 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 10 inches; gravelly ashy loam

10 to 32 inches; very gravelly ashy loam

32 to 60 inches; extremely cobbly loamy sand

Dissimilar Minor Component

Hood soils

Percentage of map unit: 5 percent

Major Uses

Crop production and timber production

93—Goldendale silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,500 to 2,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Dissimilar Minor Components

Blockhouse soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

93A—Goldendale silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,500 to 2,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 11.7 inches)

Interpretive groups*Land capability subclass (nonirrigated): 3e**Land capability subclass (irrigated): 4e**Ecological site: LOAMY 15+ PZ (R006XY102WA)***Typical profile**

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Dissimilar Minor Components**Blockhouse soils***Percentage of map unit: 5 percent***Lorena soils***Percentage of map unit: 5 percent****Major Uses***

Livestock grazing and crop production

93B—Goldendale silt loam, 10 to 15 percent slopes***Map Unit Setting****General landscape: Hills**Major land resource area (MLRA): 8**Elevation: 1,500 to 2,600 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Goldendale and similar soils: 95 percent**Dissimilar minor component: 5 percent****Characteristics of Goldendale*****Setting***Landform: Hillslopes**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash**Slope range: 10 to 15 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 11.7 inches)*

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Dissimilar Minor Component**Lorena soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

93C—Goldendale silt loam, 15 to 30 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 600 to 3,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Goldendale**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam
 14 to 20 inches; silt loam
 20 to 60 inches; clay loam

Dissimilar Minor Component**Lorena soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

93D—Goldendale silt loam, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 1,000 to 3,000 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Goldendale**Setting**

Landform: Hillslopes
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam
 14 to 20 inches; silt loam
 20 to 60 inches; clay loam

Dissimilar Minor Component**Lorena soils**

Percentage of map unit: 5 percent

Major Use

Livestock grazing

94—Lorena silt loam, 2 to 5 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Lorena**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 16 inches; silt loam

16 to 31 inches; silt loam

31 to 36 inches; silt loam

36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

94A—Lorena silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Lorena

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 16 inches; silt loam

16 to 31 inches; silt loam

31 to 36 inches; silt loam

36 to 40 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils***Percentage of map unit: 5 percent***Rockly soils***Percentage of map unit: 5 percent****Major Uses***

Crop production and livestock grazing

94B—Lorena silt loam, 10 to 15 percent slopes***Map Unit Setting****General landscape: Hills**Major land resource area (MLRA): 8**Elevation: 1,400 to 2,700 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Lorena and similar soils: 90 percent**Dissimilar minor components: 10 percent****Characteristics of Lorena*****Setting***Landform: Hillslopes**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash**Slope range: 10 to 15 percent**Depth to restrictive feature: 20 to 40 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 6.5 inches)***Interpretive groups***Land capability subclass (nonirrigated): 3e**Land capability subclass (irrigated): 4e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 16 inches; silt loam

16 to 31 inches; silt loam

31 to 36 inches; silt loam

36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

94C—Lorena silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 300 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Lorena

Setting

Landform: Hillslopes

Aspect (representative): West

Aspect (range): South to north (clockwise)

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 10 inches; silt loam

10 to 25 inches; silt loam

25 to 34 inches; silt loam

34 to 38 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils**

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

94E—Lorena-Rockly complex, 15 to 30 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 700 to 3,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 55 percent

Rockly and similar soils: 35 percent

Dissimilar minor components: 10 percent

Characteristics of Lorena**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 10 inches; silt loam

10 to 25 inches; silt loam

25 to 30 inches; silt loam

30 to 34 inches; unweathered bedrock

Characteristics of Rockly

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Goldendale soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

95—Konert silt loam, drained, 0 to 2 percent slopes

Map Unit Setting

General landscape: River valleys

Major land resource area (MLRA): 8

Elevation: 1,500 to 1,800 feet

Mean annual precipitation: 15 to 22 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Konert and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Konert

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: Frequent (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): About 25 to 36 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4w

Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 8 inches; silt loam

8 to 45 inches; silty clay

45 to 60 inches; clay loam

Dissimilar Minor Components

Blockhouse soils

Percentage of map unit: 5 percent

Munset soils

Percentage of map unit: 5 percent

Landform: Depressions

Major Uses

Livestock grazing and crop production

95A—Konert silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: River valleys

Major land resource area (MLRA): 8

Elevation: 1,500 to 2,000 feet

Mean annual precipitation: 15 to 22 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Konert and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Konert

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: Frequent (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): About 8 to 17 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 5w

Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 17 inches; silt loam

17 to 60 inches; silty clay

Dissimilar Minor Component

Munset soils

Percentage of map unit: 5 percent

Landform: Depressions

Major Uses

Crop production and livestock grazing

96—Blockhouse silt loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Alluvial plains

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,200 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Blockhouse and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Blockhouse

Setting

Landform: Swales

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Moderately well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): About 44 to 60 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2w

Land capability subclass (irrigated): 2w

Ecological site: LOAMY BOTTOM 15+ PZ (R009XY402WA)

Typical profile

0 to 12 inches; silt loam

12 to 29 inches; silty clay loam

29 to 60 inches; clay loam

Dissimilar Minor Component**Munset soils**

Percentage of map unit: 5 percent

Landform: Depressions

Major Uses

Crop production and livestock grazing

97—Munset stony silt loam, 0 to 5 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 2,400 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Munset and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Munset**Setting**

Landform: Depressions of plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium mixed with loess and residuum derived from basalt

Slope range: 0 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: Frequent (see Water Features table)

Seasonal high water table (minimum depth): About 0 to 2 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 5w

Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 2 inches; stony silt loam

2 to 16 inches; silty clay loam

16 to 22 inches; gravelly clay

22 to 25 inches; extremely gravelly sandy clay loam

25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

Lorena soils

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

97A—Setnum silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 3,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 150 days

Map Unit Composition

Setnum and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Setnum

Setting

Landform: Depressions of plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 0 to 3 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): About 10 to 17 inches (see Water Features table)
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 3w
Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 10 inches; silt loam
10 to 17 inches; silt loam
17 to 31 inches; clay
31 to 39 inches; clay loam
39 to 43 inches; unweathered bedrock

Dissimilar Minor Components**Blockhouse soils**

Percentage of map unit: 5 percent

Munset soils

Percentage of map unit: 5 percent
Landform: Depressions

Major Uses

Livestock grazing and crop production

97B—Blockhouse-Munset complex, 5 to 10 percent slopes***Map Unit Setting***

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 1,500 to 2,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Blockhouse and similar soils: 45 percent
Munset and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Blockhouse**Setting**

Landform: Swales of plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities*Parent material:* Alluvium*Slope range:* 5 to 10 percent*Depth to restrictive feature:* None within a depth of 60 inches*Drainage class:* Moderately well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* About 44 to 60 inches (see Water Features table)*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* High (about 11.7 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 4w*Land capability subclass (irrigated):* 4w*Ecological site:* LOAMY BOTTOM 15+ PZ (R009XY402WA)**Typical profile**

0 to 12 inches; silt loam

12 to 29 inches; silt loam

29 to 60 inches; clay loam

Characteristics of Munset**Setting***Landform:* Depressions of plateaus*Aspect (representative):* North*Aspect (range):* All aspects**Properties and qualities***Parent material:* Alluvium mixed with loess and residuum derived from basalt*Slope range:* 5 to 10 percent*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock*Drainage class:* Poorly drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Very low*Flooding frequency:* None*Ponding frequency:* Frequent (see Water Features table)*Seasonal high water table (minimum depth):* About 0 to 2 inches (see Water Features table)*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* Low (about 4.2 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 5w*Ecological site:* WET MEADOW 15+ PZ (R009XY601WA)**Typical profile**

0 to 2 inches; stony silt loam

2 to 16 inches; silty clay loam

16 to 22 inches; gravelly clay

22 to 25 inches; extremely gravelly sandy clay loam

25 to 29 inches; unweathered bedrock

Dissimilar Minor Components**Goldendale soils***Percentage of map unit: 5 percent***Lorena soils***Percentage of map unit: 5 percent***Rockly soils***Percentage of map unit: 5 percent****Major Uses***

Crop production and livestock grazing

99—Dallesport fine sandy loam, 0 to 8 percent slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 200 to 400 feet**Mean annual precipitation: 10 to 15 inches**Mean annual air temperature: 52 to 54 degrees F**Frost-free period: 130 to 150 days****Map Unit Composition****Dallesport and similar soils: 85 percent**Dissimilar minor components: 15 percent****Characteristics of Dallesport*****Setting***Landform: Terraces**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Eolian deposits over old sandy and gravelly alluvium**Slope range: 0 to 8 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Somewhat excessively drained**Capacity of the most limiting soil layer to transmit water (Ksat): High**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Low (about 3.7 inches)***Interpretive groups***Land capability subclass (nonirrigated): 4e**Land capability subclass (irrigated): 3e**Ecological site: SANDY 9-15 PZ (R008XY501WA)***Typical profile**

0 to 11 inches; fine sandy loam

11 to 20 inches; gravelly fine sandy loam

20 to 25 inches; very gravelly sandy loam
 25 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

Aquolls

Percentage of map unit: 5 percent
Landform: Depressions

Ewall soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

100—Dallesport very cobbly fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 150 to 900 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition

Dallesport and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Dallesport

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Eolian deposits over old gravelly alluvium
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 3.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 3 inches; very cobbly fine sandy loam
 3 to 11 inches; cobbly fine sandy loam
 11 to 19 inches; sandy loam
 19 to 24 inches; very gravelly sandy loam
 24 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components**Ewall soils**

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

101—Dallesport very cobbly fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 150 to 900 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition

Dallesport and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Dallesport**Setting**

Landform: Terrace escarpments
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Eolian deposits over old sandy and gravelly alluvium
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 3.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 3 inches; very cobbly fine sandy loam
 3 to 11 inches; cobbly fine sandy loam
 11 to 19 inches; sandy loam
 19 to 24 inches; very gravelly sandy loam
 24 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components**Ewall soils**

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

102—Dallesport gravelly fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 150 to 900 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition

Dallesport and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Dallesport**Setting**

Landform: Terrace escarpments
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Eolian deposits over old sandy and gravelly alluvium
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 10 inches; gravelly fine sandy loam
 10 to 20 inches; gravelly fine sandy loam
 20 to 24 inches; very gravelly sandy loam
 24 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components**Ewall soils**

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

103—Dallesport-Rock outcrop complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 200 to 800 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition

Dallesport and similar soils: 50 percent
Rock outcrop: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Dallesport**Setting**

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Eolian deposits over old sandy and gravelly alluvium
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 3.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 4e

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 3 inches; very cobbly fine sandy loam
 3 to 11 inches; cobbly fine sandy loam
 11 to 19 inches; sandy loam
 19 to 24 inches; very gravelly sandy loam
 24 to 60 inches; extremely gravelly coarse sand

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 0 to 15 percent

Land capability subclass: 8s

Dissimilar Minor Components

Aquolls

Percentage of map unit: 5 percent

Landform: Depressions

Ewall soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

104—Dallesport-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 200 to 800 feet

Mean annual precipitation: 10 to 15 inches

Mean annual air temperature: 52 to 54 degrees F

Frost-free period: 130 to 150 days

Map Unit Composition

Dallesport and similar soils: 50 percent

Rock outcrop: 45 percent

Dissimilar minor component: 5 percent

Characteristics of Dallesport

Setting

Landform: Terrace escarpments

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Eolian deposits over old sandy and gravelly alluvium

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 3 inches; very cobbly fine sandy loam

3 to 11 inches; cobbly fine sandy loam

11 to 19 inches; sandy loam

19 to 24 inches; very gravelly sandy loam

24 to 60 inches; extremely gravelly coarse sand

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 15 to 30 percent

Land capability subclass: 8s

Dissimilar Minor Component

Ewall soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

105—Ewall loamy sand, 0 to 8 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 100 to 800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Ewall and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Ewall

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Eolian deposits

Slope range: 0 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 3e

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 14 inches; loamy sand

14 to 60 inches; sand

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Dune land

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

106—Ewall loamy sand, 8 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 100 to 800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Ewall and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Ewall

Setting

Landform: Terrace escarpments

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Eolian deposits

Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 4e

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 14 inches; loamy sand

14 to 60 inches; sand

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Dune land

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

107—Ewall loamy sand, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 100 to 800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Ewall and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Ewall

Setting

Landform: Terrace escarpments

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Eolian deposits

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 13 inches; loamy sand

13 to 60 inches; sand

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Dune land

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

108—Ewall-Rock outcrop complex, 0 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 100 to 800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Ewall and similar soils: 50 percent

Rock outcrop: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Ewall

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Eolian deposits

Slope range: 0 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 4e

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 13 inches; loamy sand

13 to 60 inches; sand

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 0 to 15 percent

Land capability subclass: 8s

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Dune land

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

109—Ewall-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 100 to 800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Ewall and similar soils: 50 percent

Rock outcrop: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Ewall

Setting

Landform: Terrace escarpments

Aspect (representative): Southwest

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Eolian deposits

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile

0 to 11 inches; loamy sand
 11 to 60 inches; sand

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock
Slope range: 15 to 30 percent
Land capability subclass: 8s

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Rubble land

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

113B—Tekison stony loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Mountains
Major land resource area (MLRA): 6
Elevation: 1,400 to 3,400 feet
Mean annual precipitation: 16 to 25 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Tekison and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Tekison

Setting

Landform: Mountain slopes
Aspect (representative): Southeast
Aspect (range): Northeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 5 to 30 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 8 inches; stony loam

8 to 18 inches; gravelly clay loam

18 to 44 inches; very cobbly clay

44 to 60 inches; very cobbly clay loam

Dissimilar Minor Component

Rock Creek soils

Percentage of map unit: 5 percent

Major Use

Timber production

113C—Tekison stony loam, 30 to 45 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,400 to 3,400 feet

Mean annual precipitation: 16 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Tekison and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Tekison

Setting

Landform: Mountain slopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 45 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 8 inches; stony loam

8 to 18 inches; gravelly clay loam

18 to 44 inches; very cobbly clay

44 to 60 inches; very cobbly clay loam

Dissimilar Minor Component

Rock Creek soils

Percentage of map unit: 5 percent

Major Use

Timber production

115—Aquolls, nearly level

Map Unit Setting

General landscape: River valleys

Major land resource area (MLRA): 8

Elevation: 70 to 600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Aquolls and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Aquolls

Setting

Landform: Depressions

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): About 0 to 9 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 5w

Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 9 inches; loam

9 to 26 inches; loam

26 to 32 inches; cobbly loam

32 to 45 inches; very cobbly clay loam

45 to 49 inches; unweathered bedrock

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

116—Aquolls-Rock outcrop complex, nearly level

Map Unit Setting

General landscape: River valleys

Major land resource area (MLRA): 8

Elevation: 70 to 600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Aquolls and similar soils: 65 percent

Rock outcrop: 25 percent

Dissimilar minor components: 10 percent

Characteristics of Aquolls

Setting

Landform: Depressions

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): About 0 to 9 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 5w

Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 9 inches; loam

9 to 26 inches; loam

26 to 32 inches; cobbly loam

32 to 45 inches; very cobbly clay loam

45 to 49 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 0 to 3 percent

Land capability subclass: 8s

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

120—Rock outcrop-Haploxerolls complex, hilly

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 100 to 1,700 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Rock outcrop: 50 percent

Haploxerolls and similar soils: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 0 to 30 percent

Land capability subclass: 8s

Characteristics of Haploxerolls

Setting

Landform: Hillslopes

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 0 to 30 percent

Depth to restrictive feature: 10 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 4 inches; sandy loam

4 to 15 inches; cobbly sandy loam

15 to 19 inches; unweathered bedrock

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

121—Rock outcrop-Haploxerolls complex, steep

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 100 to 1,700 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 150 days

Map Unit Composition

Rock outcrop: 65 percent

Haploxerolls and similar soils: 25 percent

Dissimilar minor components: 10 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 30 to 50 percent

Land capability subclass: 8s

Characteristics of Haploxerolls

Setting

Landform: Escarpments

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 50 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 13 inches; gravelly sandy loam

13 to 24 inches; very gravelly sandy loam

24 to 60 inches; very cobbly silt loam

Dissimilar Minor Components

Dallesport soils

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

122—Rock outcrop-Haploxerolls complex, very steep

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 100 to 1,700 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 150 days

Map Unit Composition

Rock outcrop: 70 percent

Haploxerolls and similar soils: 20 percent

Dissimilar minor components: 10 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 50 to 90 percent

Land capability subclass: 8s

Characteristics of Haploxerolls**Setting**

Landform: Escarpments

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 50 to 70 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 13 inches; gravelly sandy loam

13 to 60 inches; very cobbly silt loam

Dissimilar Minor Components**Dallesport soils**

Percentage of map unit: 5 percent

Ewall soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

123A—Galiente loam, 2 to 8 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 500 to 3,200 feet
Mean annual precipitation: 15 to 25 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Galiente and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Galiente

Setting

Landform: Structural benches
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess over old alluvium
Slope range: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to abrupt textural change
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3s
Plant community class: Oregon white oak/western hazel-common snowberry
 (HOG311)

Typical profile

0 to 16 inches; loam
 16 to 60 inches; clay

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 5 percent

Rubble land

Percentage of map unit: 5 percent

Major Use

Timber production

125—Scooteney silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 1,150 to 1,250 feet
Mean annual precipitation: 6 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 170 days

Map Unit Composition

Scooteney and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Scooteney**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 6 inches; silt loam

6 to 22 inches; silt loam

22 to 33 inches; gravelly fine sandy loam

33 to 60 inches; very gravelly fine sandy loam

Dissimilar Minor Component**Esquatzel soils**

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

127—Scooteney cobbly silt loam, 0 to 5 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 2,550 to 2,600 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 135 to 170 days

Map Unit Composition

Scooteney and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Scooteney

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 6 inches; cobbly silt loam

6 to 22 inches; silt loam

22 to 33 inches; gravelly fine sandy loam

33 to 60 inches; very gravelly fine sandy loam

Dissimilar Minor Component

Esquatzel soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

130—Oxy silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 3,200 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 130 to 150 days

Map Unit Composition

Oxy and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Oxy

Setting

Landform: Flood plains along narrow drainageways

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from loess over basalt

Slope range: 0 to 2 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Occasional (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4w

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 7 inches; silt loam

7 to 21 inches; gravelly silt loam

21 to 25 inches; unweathered bedrock

Dissimilar Minor Components**Morrow soils**

Percentage of map unit: 5 percent

Van Nostern soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

131—Onyx silt loam, 0 to 2 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 400 to 3,400 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 120 to 140 days

Map Unit Composition

Onyx and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Onyx**Setting**

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Occasional (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Land capability subclass (irrigated): 3w

Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile

0 to 8 inches; silt loam

8 to 21 inches; silt loam

21 to 49 inches; silt loam

49 to 60 inches; gravelly loam

Dissimilar Minor Components

Morrow soils

Percentage of map unit: 5 percent

Van Nostern soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

132—Esquatzel silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Alluvial plains

Major land resource area (MLRA): 8

Elevation: 1,400 to 3,000 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 130 to 200 days

Map Unit Composition

Esquatzel and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Esquatzel

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Silty alluvium

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very high (about 12.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 2e
Ecological site: LOAMY BOTTOM 6-9 PZ (R007XY402WA)

Typical profile

0 to 17 inches; silt loam
17 to 60 inches; silt loam

Dissimilar Minor Component**Willis soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

136—Bickleton silt loam, 2 to 5 percent slopes***Map Unit Setting***

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 2,600 to 3,600 feet
Mean annual precipitation: 11 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 120 to 160 days

Map Unit Composition

Bickleton and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bickleton**Setting**

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess over mixed older loess, slope alluvium, and colluvium derived from basalt
Slope range: 2 to 5 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 19 inches; silt loam

19 to 30 inches; silt loam

30 to 44 inches; silt loam

44 to 52 inches; very gravelly silty clay loam

52 to 56 inches; unweathered bedrock

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Morrow soils

Percentage of map unit: 5 percent

Van Nostern soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

137—Bickleton silt loam, 5 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 2,600 to 3,600 feet

Mean annual precipitation: 11 to 16 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 120 to 160 days

Map Unit Composition

Bickleton and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Bickleton

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over mixed older loess, slope alluvium, and colluvium derived from basalt

Slope range: 5 to 15 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 19 inches; silt loam

19 to 30 inches; silt loam

30 to 44 inches; silt loam

44 to 52 inches; very gravelly silty clay loam

52 to 56 inches; unweathered bedrock

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Morrow soils

Percentage of map unit: 5 percent

Van Nostern soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

140—Broadax silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,600 to 3,000 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Map Unit Composition

Broadax and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Broadax

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 2e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 17 inches; silt loam

17 to 38 inches; silt loam

38 to 60 inches; silt loam

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Morrow soils

Percentage of map unit: 5 percent

Van Nostern soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

141—Broadax silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,600 to 3,000 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Map Unit Composition

Broadax and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Broadax

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 17 inches; silt loam

17 to 38 inches; silt loam

38 to 60 inches; silt loam

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Morrow soils

Percentage of map unit: 5 percent

Van Nostern soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

150—Morrow silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,800 to 3,100 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 155 days

Map Unit Composition

Morrow and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Morrow

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 16 inches; silt loam

16 to 31 inches; silt loam

31 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Broadax soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

151—Morrow silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,800 to 3,100 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 155 days

Map Unit Composition

Morrow and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Morrow

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 16 inches; silt loam

16 to 31 inches; silt loam

31 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Broadax soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

155—Morrow-Bakeoven complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,800 to 3,100 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 155 days

Map Unit Composition

Morrow and similar soils: 60 percent

Bakeoven and similar soils: 35 percent

Dissimilar minor component: 5 percent

Characteristics of Morrow

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 16 inches; silt loam

16 to 31 inches; silt loam

31 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Characteristics of Bakeoven

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Component

Broadax soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

159B—Panak ashy loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 2,000 to 3,000 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 44 to 46 degrees F

Frost-free period: 90 to 110 days

Map Unit Composition

Panak and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Panak

Setting

Landform: Mountain summits

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 7 inches; ashy loam

7 to 19 inches; loam

19 to 42 inches; loam

42 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Use

Timber production

159C—Panak cobbly ashy loam, 30 to 50 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 2,000 to 3,000 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 44 to 46 degrees F

Frost-free period: 90 to 110 days

Map Unit Composition

Panak and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Panak

Setting

Landform: Mountain backslopes

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 30 to 50 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 8 inches; cobbly ashy loam

8 to 26 inches; loam

26 to 42 inches; loam

42 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Use

Timber production

159D—Panak cobbly ashy loam, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 6

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 44 to 46 degrees F

Frost-free period: 90 to 110 days

Map Unit Composition

Panak and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Panak

Setting

Landform: Mountain backslopes

Aspect (representative): North

Aspect (range): Northwest to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Grand fir/vine maple (CWS551)

Typical profile

0 to 8 inches; cobbly ashy loam

8 to 26 inches; loam

26 to 42 inches; loam

42 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Underwood soils

Percentage of map unit: 5 percent

Major Use

Timber production

161—Van Nostern silt loam, 5 to 10 percent north slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,900 to 2,600 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 160 days

Map Unit Composition

Van Nostern and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Van Nostern

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): Northwest to northeast (clockwise)

Properties and qualities

Parent material: Loess over basalt

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 17 inches; silt loam

17 to 35 inches; silt loam

35 to 39 inches; unweathered bedrock

Dissimilar Minor Component

Bakeoven soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

181—Umapine silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 2,000 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 145 to 155 days

Map Unit Composition

Umapine and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Umapine

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from loess

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Occasional (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): About 6 to 20 inches (see Water Features table)

Salinity (maximum): Slightly saline (about 6 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 15

Available water capacity (entire profile): High (about 11.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile

0 to 20 inches; silt loam

20 to 60 inches; silt loam

Dissimilar Minor Components

Cleman soils

Percentage of map unit: 5 percent

Weirman soils

Percentage of map unit: 5 percent

Landform: Flood plains

Major Use

Livestock grazing

187—Cleman very fine sandy loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Alluvial fans

Major land resource area (MLRA): 8

Elevation: 600 to 1,400 feet

Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 135 to 150 days

Map Unit Composition

Cleman and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Cleman

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile

0 to 10 inches; very fine sandy loam

10 to 43 inches; stratified loamy fine sand to silt loam

43 to 60 inches; stratified very gravelly sand to silt loam

Dissimilar Minor Components

Quincy soils

Percentage of map unit: 5 percent

Umapine soils

Percentage of map unit: 5 percent

Weirman soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

190—Weirman fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 8

Elevation: 250 to 2,600 feet

Mean annual precipitation: 6 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Weirman and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Weirman

Setting

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 5 percent

Depth to restrictive feature: 4 to 10 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: Frequent (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): About 40 to 72 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6w

Land capability subclass (irrigated): 4w

Ecological site: LOAMY BOTTOM 6-9 PZ (R007XY402WA)

Typical profile

0 to 4 inches; fine sandy loam

4 to 10 inches; very gravelly loamy sand

10 to 60 inches; very gravelly sand

Dissimilar Minor Components

Cleman soils

Percentage of map unit: 5 percent

Riverwash

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

193—Swalecreek silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,550 to 2,000 feet

Mean annual precipitation: 15 to 17 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Swalecreek and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Swalecreek

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2c

Land capability subclass (irrigated): 2c

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 18 inches; silt loam

18 to 31 inches; silt loam

31 to 60 inches; silty clay loam

Dissimilar Minor Component

Niva soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

194—Swalecreek silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,550 to 1,800 feet

Mean annual precipitation: 15 to 17 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Swalecreek and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Swalecreek

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 2e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 18 inches; silt loam

18 to 31 inches; silt loam

31 to 60 inches; silty clay loam

Dissimilar Minor Component**Niva soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

195—Swalecreek-Niva complex, 5 to 10 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,550 to 1,900 feet

Mean annual precipitation: 15 to 17 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Swalecreek and similar soils: 55 percent

Niva and similar soils: 40 percent

Dissimilar minor component: 5 percent

Characteristics of Swalecreek**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 18 inches; silt loam
 18 to 31 inches; silt loam
 31 to 60 inches; silty clay loam

Characteristics of Niva

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium over a duripan
Slope range: 5 to 10 percent
Depth to restrictive feature: 10 to 20 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 6s
Ecological site: DRY STONY 15+ PZ (R006XY201WA)

Typical profile

0 to 12 inches; silt loam
 12 to 17 inches; silty clay loam
 17 to 27 inches; cemented material

Dissimilar Minor Component

Mondovi soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

196—Mondovi silt loam, 0 to 2 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,500 to 1,800 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Mondovi and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Mondovi**Setting**

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from loess

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: Occasional (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile

0 to 6 inches; silt loam

6 to 60 inches; silt loam

Dissimilar Minor Components**Blockhouse soils**

Percentage of map unit: 5 percent

Munset soils

Percentage of map unit: 5 percent

Landform: Depressions

Major Uses

Crop production and livestock grazing

200—Malaga gravelly fine sandy loam, 0 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 7
Elevation: 600 to 800 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition

Malaga and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Malaga

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile

0 to 3 inches; gravelly fine sandy loam
 3 to 17 inches; gravelly fine sandy loam
 17 to 21 inches; extremely gravelly sandy loam
 21 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

Koehler soils

Percentage of map unit: 5 percent

Prosser soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

211—Hezel loamy fine sand, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 500 to 700 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 52 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Hezel and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Hezel

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits with a mantle of eolian sand

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 2e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 5 inches; loamy fine sand

5 to 17 inches; loamy sand

17 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

Sagehill soils

Percentage of map unit: 3 percent

Quincy soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and crop production

212—Hezel loamy fine sand, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 500 to 700 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 52 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Hezel and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Hezel

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits with a mantle of eolian sand

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 4e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 5 inches; loamy fine sand

5 to 17 inches; loamy sand

17 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

Quincy soils

Percentage of map unit: 5 percent

Sagehill soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

213—Hezel loamy fine sand, 15 to 30 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 500 to 700 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 52 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Hezel and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Hezel

Setting

Landform: Terrace escarpments

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Lacustrine deposits with a mantle of eolian sand

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 4e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 5 inches; loamy fine sand

5 to 17 inches; loamy sand

17 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

Blowouts

Percentage of map unit: 5 percent

Quincy soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

225—Kiona stony very fine sandy loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Canyonlands
Major land resource area (MLRA): 7
Elevation: 200 to 1,500 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 180 days

Map Unit Composition

Kiona and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Kioma

Setting

Landform: Canyonsides
Aspect (representative): Southeast
Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess
Slope range: 5 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 9 inches; stony very fine sandy loam
 9 to 25 inches; very cobbly silt loam
 25 to 60 inches; extremely cobbly silt loam

Dissimilar Minor Components

Borfin soils

Percentage of map unit: 8 percent

Cheviot soils

Percentage of map unit: 7 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

226—Kiona-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 7

Elevation: 200 to 1,500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Kiona and similar soils: 75 percent

Rock outcrop: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Kioma

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: COOL STONY 6-9 PZ (R007XY203WA)

Typical profile

0 to 9 inches; very stony silt loam

9 to 25 inches; very cobbly silt loam

25 to 60 inches; extremely cobbly silt loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 30 to 65 percent

Land capability subclass: 8s

Dissimilar Minor Components

Borfin soils

Percentage of map unit: 4 percent

Cheviot soils

Percentage of map unit: 3 percent

Starbuck soils

Percentage of map unit: 3 percent

Major Use

Livestock grazing

227—Cheviot very stony silt loam, 5 to 30 percent slopes***Map Unit Setting***

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 300 to 2,100 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Cheviot and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Cheviot**Setting**

Landform: Canyonsides

Aspect (representative): East

Aspect (range): North to south (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Dissimilar Minor Components**Lickskillet soils**

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

228—Borfin cobbly clay loam, 30 to 50 percent slopes, stony**Map Unit Setting**

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 400 to 2,900 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Borfin and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Borfin**Setting**

Landform: Canyon shoulder slopes

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Old alluvium over a duripan underlain by sandstone

Slope range: 30 to 50 percent

Depth to restrictive features: 20 to 36 inches to an indurated duripan and 24 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 7 inches; cobbly clay loam

7 to 18 inches; very cobbly clay

18 to 24 inches; gravelly clay loam

24 to 34 inches; cemented material

34 to 38 inches; unweathered bedrock

Dissimilar Minor Components**Lickskillet soils**

Percentage of map unit: 5 percent

Rock outcrop*Percentage of map unit: 5 percent***Major Use**

Livestock grazing

229—Cheviot-Wipple-Rock outcrop complex, 30 to 65 percent slopes**Map Unit Setting***General landscape: Canyonlands**Major land resource area (MLRA): 8**Elevation: 400 to 2,700 feet**Mean annual precipitation: 9 to 13 inches**Mean annual air temperature: 48 to 50 degrees F**Frost-free period: 130 to 170 days***Map Unit Composition***Cheviot and similar soils: 60 percent**Wipple and similar soils: 15 percent**Rock outcrop: 10 percent**Dissimilar minor components: 15 percent***Characteristics of Cheviot****Setting***Landform: Canyonsides**Aspect (representative): South**Aspect (range): Southeast to southwest (clockwise)***Properties and qualities***Parent material: Colluvium derived from basalt mixed with loess**Slope range: 30 to 65 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline (about 1 millimho per centimeter)**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Low (about 5.9 inches)***Interpretive groups***Land capability subclass (nonirrigated): 7e**Ecological site: STONY 9-15 PZ (R008XY202WA)***Typical profile**

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Characteristics of Wipple**Setting***Landform: Canyonsides**Aspect (representative): South*

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: 10 to 20 inches to abrupt textural change

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 1

Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 6 inches; very stony clay loam

6 to 23 inches; very cobbly clay loam

23 to 40 inches; very cobbly clay

40 to 60 inches; extremely cobbly clay loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 30 to 65 percent

Land capability subclass: 8s

Dissimilar Minor Components

Kennewick soils

Percentage of map unit: 5 percent

Lickskillet soils

Percentage of map unit: 5 percent

Shano soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

230—Cheviot-Ralls-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills and canyonlands

Major land resource area (MLRA): 8

Elevation: 400 to 2,700 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Cheviot and similar soils: 40 percent

Ralls and similar soils: 35 percent

Rock outcrop: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Cheviot

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Characteristics of Ralls

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 5 inches; stony silt loam
 5 to 17 inches; silt loam
 17 to 36 inches; gravelly silt loam
 36 to 47 inches; gravelly silt loam
 47 to 60 inches; very gravelly silt loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock
Slope range: 30 to 65 percent
Land capability subclass: 8s

Dissimilar Minor Components**Starbuck soils**

Percentage of map unit: 5 percent

Wipple soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

240—Niva silt loam, 5 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 1,550 to 1,700 feet
Mean annual precipitation: 15 to 17 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Niva and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Niva**Setting**

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium over a duripan
Slope range: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups*Land capability subclass (nonirrigated): 6s**Land capability subclass (irrigated): 6s**Ecological site: DRY STONY 15+ PZ (R006XY201WA)***Typical profile**

0 to 7 inches; silt loam

7 to 17 inches; silty clay loam

17 to 21 inches; cemented material

21 to 31 inches; cemented material

Dissimilar Minor Component**Swalecreek soils***Percentage of map unit: 5 percent****Major Uses***

Livestock grazing and crop production

241—Niva silt loam, 15 to 30 percent north slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 1,550 to 1,700 feet**Mean annual precipitation: 15 to 17 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Niva and similar soils: 95 percent**Dissimilar minor component: 5 percent****Characteristics of Niva*****Setting***Landform: Escarpments**Aspect (representative): Northwest**Aspect (range): Southwest to north (clockwise)***Properties and qualities***Parent material: Alluvium over a duripan**Slope range: 15 to 30 percent**Depth to restrictive feature: 10 to 20 inches to an indurated duripan**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Very low**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Low (about 4 inches)***Interpretive groups***Land capability subclass (nonirrigated): 4e**Land capability subclass (irrigated): 6e**Ecological site: DRY STONY 15+ PZ (R006XY201WA)*

Typical profile

0 to 10 inches; silt loam
 10 to 19 inches; silty clay loam
 19 to 30 inches; cemented material

Dissimilar Minor Component**Swalecreek soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

242—Niva silt loam, 15 to 30 percent south slopes***Map Unit Setting***

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 1,550 to 1,700 feet
Mean annual precipitation: 15 to 17 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Niva and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Niva**Setting**

Landform: Escarpments
Aspect (representative): West
Aspect (range): South to northwest (clockwise)

Properties and qualities

Parent material: Alluvium over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 6e
Ecological site: DRY STONY 15+ PZ (R006XY201WA)

Typical profile

0 to 10 inches; silt loam
 10 to 16 inches; silty clay loam
 16 to 26 inches; cemented material

Dissimilar Minor Component

Swalecreek soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

250—Van Nostern silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,800 to 3,600 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 160 days

Map Unit Composition

Van Nostern and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Van Nostern

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 34 inches; silt loam

34 to 38 inches; unweathered bedrock

Dissimilar Minor Component

Bakeoven soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

251—Van Nostern silt loam, 5 to 10 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 2,200 to 3,600 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 160 days

Map Unit Composition

Van Nostern and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Van Nostern**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 34 inches; silt loam

34 to 38 inches; unweathered bedrock

Dissimilar Minor Component**Bakeoven soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

255—Van Nostern-Bakeoven complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 1,800 to 4,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 160 days

Map Unit Composition

Van Nostern and similar soils: 65 percent
Bakeoven and similar soils: 30 percent
Dissimilar minor component: 5 percent

Characteristics of Van Nostern

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam
 11 to 34 inches; silt loam
 34 to 38 inches; unweathered bedrock

Characteristics of Bakeoven

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess
Slope range: 2 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Component

Morrow soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

266—Van Nostern-Bakeoven complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 1,800 to 4,000 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 160 days

Map Unit Composition

Van Nostern and similar soils: 50 percent

Bakeoven and similar soils: 45 percent

Dissimilar minor component: 5 percent

Characteristics of Van Nostern

Setting

Landform: Canyon shoulder slopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 34 inches; silt loam

34 to 38 inches; unweathered bedrock

Characteristics of Bakeoven

Setting

Landform: Canyon shoulder slopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Component

Morrow soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

274—Prosser silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 500 to 1,500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 150 to 210 days

Map Unit Composition

Prosser and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Prosser

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; silt loam

4 to 20 inches; silt loam

20 to 32 inches; silt loam

32 to 36 inches; unweathered bedrock

Dissimilar Minor Component

Bakeoven soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

275—Prosser silt loam, 5 to 15 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 500 to 1,500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 150 to 210 days

Map Unit Composition

Prosser and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Prosser

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 5 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; silt loam

4 to 20 inches; silt loam

20 to 32 inches; silt loam

32 to 36 inches; unweathered bedrock

Dissimilar Minor Component

Bakeoven soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

277—Prosser-Bakeoven complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 1,600 feet

Mean annual precipitation: 9 to 10 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Prosser and similar soils: 50 percent

Bakeoven and similar soils: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Prosser

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; silt loam

4 to 20 inches; silt loam

20 to 32 inches; silt loam

32 to 36 inches; unweathered bedrock

Characteristics of Bakeoven

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Kiona soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

280—Quincy loamy sand, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 150 to 700 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Quincy and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Quincy

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Sandy eolian deposits

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 4e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 27 inches; loamy sand

27 to 60 inches; loamy sand

Dissimilar Minor Component

Blowouts

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

281—Quincy loamy sand, 2 to 25 percent slopes**Map Unit Setting**

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 150 to 700 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Quincy and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Quincy**Setting**

Landform: Dunes

Aspect (representative): North

Aspect (range): South to southwest (clockwise)

Properties and qualities

Parent material: Sandy eolian deposits

Slope range: 2 to 25 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 4e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 27 inches; loamy sand

27 to 60 inches; loamy sand

Dissimilar Minor Component**Blowouts**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

285—Quinton fine sand, 2 to 10 percent slopes***Map Unit Setting***

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 250 to 800 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Quinton and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Quinton**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Sandy eolian deposits

Slope range: 2 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 4e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 23 inches; fine sand

23 to 30 inches; gravelly loamy fine sand

30 to 34 inches; unweathered bedrock

Dissimilar Minor Component**Kiona soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

290—Koehler loamy fine sand, 0 to 10 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 7

Elevation: 600 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Koehler and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Koehler

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Sandy eolian deposits

Slope range: 0 to 10 percent

Depth to restrictive feature: 20 to 40 inches to an indurated duripan

Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Land capability subclass (irrigated): 4e

Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile

0 to 15 inches; loamy fine sand

15 to 32 inches; loamy fine sand

32 to 36 inches; gravelly loamy sand

36 to 60 inches; cemented material

Dissimilar Minor Components

Hezel soils

Percentage of map unit: 3 percent

Prosser soils

Percentage of map unit: 3 percent

Burbank soils

Percentage of map unit: 2 percent

Quincy soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and crop production

296—Swalecreek silt loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 1,600 to 2,200 feet
Mean annual precipitation: 15 to 17 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Swalecreek and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Swalecreek

Setting

Landform: Terrace escarpments
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess
Slope range: 10 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 14 inches; silt loam
14 to 60 inches; silty clay loam

Dissimilar Minor Components

Broadax soils

Percentage of map unit: 5 percent

Niva soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

297—Swalecreek silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,000 to 2,400 feet

Mean annual precipitation: 15 to 17 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Map Unit Composition

Swalecreek and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Swalecreek

Setting

Landform: Terrace escarpments

Aspect (representative): Northwest

Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 14 inches; silt loam

14 to 60 inches; silty clay loam

Dissimilar Minor Components

Broadax soils

Percentage of map unit: 5 percent

Niva soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

298—Swalecreek-Rockly complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 700 to 2,400 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Swalecreek and similar soils: 50 percent
Rockly and similar soils: 45 percent
Dissimilar minor component: 5 percent

Characteristics of Swalecreek

Setting

Landform: Escarpments of drainageways
Aspect (representative): Northwest
Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 16 inches; silt loam
 16 to 60 inches; silty clay loam

Characteristics of Rockly

Setting

Landform: Hillslopes
Aspect (representative): Northwest
Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 15 to 30 percent
Depth to restrictive feature: 5 to 12 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Component

Niva soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

299—Swalecreek-Rockly complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 500 to 2,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Swalecreek and similar soils: 55 percent

Rockly and similar soils: 40 percent

Dissimilar minor component: 5 percent

Characteristics of Swalecreek

Setting

Landform: Escarpments of drainageways

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups*Land capability subclass (nonirrigated): 7e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 16 inches; silt loam

16 to 60 inches; silty clay loam

Characteristics of Rockly**Setting***Landform: Hillslopes**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash**Slope range: 30 to 60 percent**Depth to restrictive feature: 5 to 12 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Very low (about 0.8 inch)***Interpretive groups***Land capability subclass (nonirrigated): 7s**Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)***Typical profile**

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Component**Niva soils***Percentage of map unit: 5 percent****Major Use***

Livestock grazing

304—Ritzville silt loam, 5 to 15 percent slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 700 to 2,500 feet**Mean annual precipitation: 9 to 12 inches**Mean annual air temperature: 48 to 52 degrees F**Frost-free period: 130 to 160 days*

Map Unit Composition

Ritzville and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Ritzville**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 15 inches; silt loam

15 to 39 inches; silt loam

39 to 60 inches; silt loam

Dissimilar Minor Components**Lickskillet soils**

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

305—Ritzville silt loam, 15 to 30 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 700 to 2,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 130 to 160 days

Map Unit Composition

Ritzville and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Ritzville

Setting

Landform: Dissected plateaus

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 15 inches; silt loam

15 to 39 inches; silt loam

39 to 60 inches; silt loam

Dissimilar Minor Components

Lickskillet soils

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

306—Ritzville silt loam, 30 to 60 percent slopes

Map Unit Setting

General landscape: Canyons

Major land resource area (MLRA): 8

Elevation: 1,500 to 1,800 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 130 to 160 days

Map Unit Composition

Ritzville and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Ritzville**Setting**

Landform: Canyonsides

Aspect (representative): Northeast

Aspect (range): North to east (clockwise)

Properties and qualities

Parent material: Loess

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 7 inches; silt loam

7 to 37 inches; silt loam

37 to 60 inches; silt loam

Dissimilar Minor Components**Lickskillet soils**

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

308—Ralls stony silt loam, 30 to 60 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 600 to 2,000 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Ralls and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Ralls

Setting

Landform: Hillslopes

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 5 inches; stony silt loam

5 to 17 inches; silt loam

17 to 36 inches; gravelly silt loam

36 to 47 inches; gravelly silt loam

47 to 60 inches; very gravelly silt loam

Dissimilar Minor Components

Mikkalo soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

317—Reilloc-Sienna complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 2,600 to 3,800 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 47 to 49 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Reilloc and similar soils: 60 percent

Sienna and similar soils: 30 percent

Dissimilar minor components: 10 percent

Characteristics of Reilloc**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Old alluvium and residuum derived from basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 3 inches; stony silt loam

3 to 6 inches; gravelly loam

6 to 10 inches; very gravelly silty clay loam

10 to 13 inches; very gravelly silty clay

13 to 17 inches; unweathered bedrock

Characteristics of Sienna**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Old alluvium and residuum derived from basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups*Land capability subclass (nonirrigated): 4e**Ecological site: COOL STONY 15+ PZ (R006XY203WA)***Typical profile**

0 to 4 inches; stony silt loam

4 to 8 inches; gravelly silt loam

8 to 13 inches; very gravelly silt loam

13 to 24 inches; very cobbly clay loam

24 to 28 inches; unweathered bedrock

Dissimilar Minor Components**Bakeoven soils***Percentage of map unit: 5 percent***Lickskillet soils***Percentage of map unit: 5 percent****Major Use***

Livestock grazing

318—Sienna very gravelly loam, 15 to 30 percent slopes***Map Unit Setting****General landscape: Canyonlands**Major land resource area (MLRA): 8**Elevation: 3,300 to 3,800 feet**Mean annual precipitation: 12 to 18 inches**Mean annual air temperature: 47 to 49 degrees F**Frost-free period: 120 to 170 days****Map Unit Composition****Sienna and similar soils: 95 percent**Dissimilar minor component: 5 percent****Characteristics of Sienna*****Setting***Landform: Canyon shoulder slopes**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Old alluvium and residuum derived from basalt**Slope range: 15 to 30 percent**Depth to restrictive feature: 20 to 40 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Very low (about 2.7 inches)*

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL STONY 15+ PZ (R006XY203WA)

Typical profile

0 to 8 inches; very gravelly loam

8 to 18 inches; very gravelly clay loam

18 to 22 inches; very gravelly clay loam

22 to 26 inches; unweathered bedrock

Dissimilar Minor Component**Reilloc soils**

Percentage of map unit: 5 percent

Major Use

Livestock grazing

329—Badge very stony silt loam, 15 to 45 percent south slopes***Map Unit Setting***

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 1,500 to 3,500 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 150 days

Map Unit Composition

Badge and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Badge**Setting**

Landform: Canyonsides

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 45 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups*Land capability subclass (nonirrigated): 7s**Ecological site: STONY 9-15 PZ (R008XY202WA)***Typical profile**

0 to 11 inches; very stony silt loam

11 to 41 inches; very cobbly silt loam

41 to 60 inches; very cobbly silt loam

Dissimilar Minor Components**Morrow soils***Percentage of map unit: 5 percent***Rock outcrop***Percentage of map unit: 5 percent****Major Use***

Livestock grazing

330—Badge very stony silt loam, 15 to 45 percent north slopes***Map Unit Setting****General landscape: Canyonlands**Major land resource area (MLRA): 8**Elevation: 1,500 to 3,500 feet**Mean annual precipitation: 12 to 18 inches**Mean annual air temperature: 48 to 50 degrees F**Frost-free period: 110 to 150 days****Map Unit Composition****Badge and similar soils: 80 percent**Dissimilar minor components: 20 percent****Characteristics of Badge*****Setting***Landform: Canyonsides**Aspect (representative): Northeast**Aspect (range): North to east (clockwise)***Properties and qualities***Parent material: Colluvium derived from basalt mixed with loess**Slope range: 15 to 45 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 6.4 inches)*

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 11 inches; very stony silt loam

11 to 41 inches; very cobbly silt loam

41 to 60 inches; very cobbly silt loam

Dissimilar Minor Components**Ralls soils**

Percentage of map unit: 7 percent

Renslow soils

Percentage of map unit: 7 percent

Rock outcrop

Percentage of map unit: 6 percent

Major Use

Livestock grazing

343—Shano silt loam, 5 to 10 percent slopes***Map Unit Setting***

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 900 to 1,400 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 46 to 54 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Shano and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Shano**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 7 inches; silt loam

7 to 34 inches; silt loam

34 to 60 inches; silt loam

Dissimilar Minor Component

Prosser soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

346—Shano silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 900 to 1,400 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 46 to 54 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Shano and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Shano

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 7 inches; silt loam

7 to 34 inches; silt loam

34 to 60 inches; silt loam

Dissimilar Minor Component**Prosser soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

347—Shano silt loam, 10 to 15 percent slopes***Map Unit Setting***

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 900 to 1,400 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 46 to 54 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Shano and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Shano**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 7 inches; silt loam

7 to 34 inches; silt loam

34 to 60 inches; silt loam

Dissimilar Minor Component

Prosser soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

348—Shano silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 900 to 1,400 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 46 to 54 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Shano and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Shano

Setting

Landform: Plateaus

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 7 inches; silt loam

7 to 34 inches; silt loam

34 to 60 inches; silt loam

Dissimilar Minor Component**Prosser soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

350—Willis silt loam, 2 to 5 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,000 to 1,700 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Willis and similar soils: 100 percent

Characteristics of Willis**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 7 inches; silt loam

7 to 15 inches; silt loam

15 to 33 inches; silt loam

33 to 43 inches; cemented material

Major Uses

Livestock grazing and crop production

351—Willis silt loam, 5 to 10 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,000 to 1,700 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Willis and similar soils: 100 percent

Characteristics of Willis**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 7 inches; silt loam

7 to 15 inches; silt loam

15 to 33 inches; silt loam

33 to 43 inches; cemented material

Major Uses

Livestock grazing and crop production

352—Willis silt loam, 10 to 15 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,000 to 1,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 150 to 180 days

Map Unit Composition

Willis and similar soils: 100 percent

Characteristics of Willis

Setting

Landform: Terrace escarpments
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 10 to 15 percent
Depth to restrictive feature: 20 to 40 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 7 inches; silt loam
7 to 15 inches; silt loam
15 to 33 inches; silt loam
33 to 43 inches; cemented material

Major Uses

Livestock grazing and crop production

353—Willis silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 1,000 to 1,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 150 to 180 days

Map Unit Composition

Willis and similar soils: 100 percent

Characteristics of Willis

Setting

Landform: Terrace escarpments

Aspect (representative): Northwest

Aspect (range): West to north (clockwise)

Properties and qualities

Parent material: Loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 7 inches; silt loam

7 to 15 inches; silt loam

15 to 33 inches; silt loam

33 to 43 inches; cemented material

Major Uses

Crop production and livestock grazing

360—Selah silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 7

Elevation: 500 to 2,100 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Selah and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Selah

Setting

Landform: Bedrock-controlled terraces of plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and old alluvium over basalt

Slope range: 2 to 5 percent

Depth to restrictive features: 20 to 40 inches to an indurated duripan and 24 to 57 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 2e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 11 inches; silt loam

11 to 27 inches; silt loam

27 to 39 inches; gravelly clay loam

39 to 50 inches; cemented material

50 to 54 inches; unweathered bedrock

Dissimilar Minor Components

Van Nostern soils

Percentage of map unit: 5 percent

Willis soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

361—Selah silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 7

Elevation: 1,000 to 2,100 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Selah and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Selah

Setting

Landform: Bedrock-controlled terraces of plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and old alluvium over basalt

Slope range: 5 to 10 percent

Depth to restrictive features: 20 to 40 inches to an indurated duripan and 24 to 57 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 11 inches; silt loam

11 to 27 inches; silt loam

27 to 39 inches; gravelly clay loam

39 to 50 inches; cemented material

50 to 54 inches; unweathered bedrock

Dissimilar Minor Components**Van Nostern soils**

Percentage of map unit: 5 percent

Willis soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

362—Selah silt loam, 10 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 7

Elevation: 1,000 to 2,100 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Selah and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Selah**Setting**

Landform: Bedrock-controlled terraces of plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and old alluvium over basalt

Slope range: 10 to 15 percent

Depth to restrictive features: 20 to 40 inches to an indurated duripan and 24 to 57 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 11 inches; silt loam

11 to 27 inches; silt loam

27 to 39 inches; gravelly clay loam

39 to 50 inches; cemented material

50 to 54 inches; unweathered bedrock

Dissimilar Minor Components**Van Nostern soils**

Percentage of map unit: 5 percent

Willis soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

365—Selah-Bakeoven complex, 2 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 7

Elevation: 1,000 to 2,100 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Selah and similar soils: 55 percent

Bakeoven and similar soils: 35 percent

Dissimilar minor components: 10 percent

Characteristics of Selah**Setting**

Landform: Bedrock-controlled terraces of plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and old alluvium over basalt

Slope range: 2 to 15 percent

Depth to restrictive features: 20 to 40 inches to an indurated duripan and 24 to 57 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 11 inches; silt loam

11 to 27 inches; silt loam

27 to 39 inches; gravelly clay loam

39 to 50 inches; cemented material

50 to 54 inches; unweathered bedrock

Characteristics of Bakeoven

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components**Van Nostern soils**

Percentage of map unit: 5 percent

Willis soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

374—Thiessen very stony silt loam, 15 to 45 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 3,200 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Thiessen and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Thiessen**Setting**

Landform: Hillslopes

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 45 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: COOL STONY 15+ PZ (R006XY203WA)

Typical profile

0 to 6 inches; very stony silt loam

6 to 23 inches; very cobbly clay loam

23 to 30 inches; very cobbly clay

30 to 34 inches; unweathered bedrock

Dissimilar Minor Components

Berson soils

Percentage of map unit: 5 percent

Camaspatch soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

375—Lickskillet cobbly silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 200 to 4,000 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 100 to 180 days

Map Unit Composition

Lickskillet and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Lickskillet

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 8 inches; cobbly silt loam

8 to 18 inches; very gravelly silt loam

18 to 22 inches; unweathered bedrock

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Borfin soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

376—Lickskillet silt loam, 2 to 15 percent slopes**Map Unit Setting**

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 1,000 to 2,800 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 120 to 200 days

Map Unit Composition

Lickskillet and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Lickskillet**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 8 inches; silt loam

8 to 18 inches; very gravelly silt loam

18 to 22 inches; unweathered bedrock

Dissimilar Minor Components**Bakeoven soils**

Percentage of map unit: 5 percent

Rock outcrop*Percentage of map unit: 5 percent***Major Use**

Livestock grazing

377—Lickskillet cobbly silt loam, 2 to 15 percent slopes**Map Unit Setting***General landscape:* Canyonlands*Major land resource area (MLRA):* 8*Elevation:* 200 to 4,000 feet*Mean annual precipitation:* 9 to 12 inches*Mean annual air temperature:* 45 to 52 degrees F*Frost-free period:* 100 to 180 days**Map Unit Composition***Lickskillet and similar soils:* 90 percent*Dissimilar minor components:* 10 percent**Characteristics of Lickskillet****Setting***Landform:* Plateaus*Aspect (representative):* North*Aspect (range):* All aspects**Properties and qualities***Parent material:* Colluvium and residuum derived from basalt and loess*Slope range:* 2 to 15 percent*Depth to restrictive feature:* 12 to 20 inches to lithic bedrock*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline (about 1 millimho per centimeter)*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* Very low (about 1.8 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 7s*Ecological site:* STONY 6-9 PZ (R007XY202WA)**Typical profile**

0 to 8 inches; cobbly silt loam

8 to 18 inches; very gravelly silt loam

18 to 22 inches; unweathered bedrock

Dissimilar Minor Components**Bakeoven soils***Percentage of map unit:* 5 percent**Rock outcrop***Percentage of map unit:* 5 percent

Major Use

Livestock grazing

378—Starbuck-Rock outcrop complex, 0 to 45 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 250 to 2,600 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 170 days

Map Unit Composition

Starbuck and similar soils: 65 percent

Rock outcrop: 25 percent

Dissimilar minor components: 10 percent

Characteristics of Starbuck**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 0 to 45 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 3 inches; cobbly silt loam

3 to 13 inches; gravelly silt loam

13 to 17 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 0 to 45 percent

Land capability subclass: 8s

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Kiona soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

379—Rock outcrop-Rubble land-Cheviot complex, 45 to 90 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 1,100 to 2,300 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Rock outcrop: 40 percent

Rubble land: 35 percent

Cheviot and similar soils: 25 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 45 to 90 percent

Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)

Slope range: 45 to 90 percent

Land capability subclass: 8s

Characteristics of Cheviot

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 45 to 75 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Major Use

Livestock grazing

380—Cheviot-Lickskillet-Rock outcrop complex, 45 to 90 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 250 to 2,300 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Cheviot and similar soils: 35 percent

Lickskillet and similar soils: 30 percent

Rock outcrop: 20 percent

Dissimilar minor components: 15 percent

Characteristics of Cheviot

Setting

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 45 to 90 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Characteristics of Lickskillet**Setting**

Landform: Canyonsides

Aspect (representative): South

Aspect (range): East to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 45 to 90 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 8 inches; cobbly silt loam

8 to 18 inches; very gravelly silt loam

18 to 22 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 45 to 90 percent

Land capability subclass: 8s

Dissimilar Minor Components**Whipple soils**

Percentage of map unit: 8 percent

Starbuck soils

Percentage of map unit: 7 percent

Major Use

Livestock grazing

381—Ralls-Cheviot-Lickskillet complex, 45 to 90 percent slopes***Map Unit Setting***

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 400 to 1,800 feet

Mean annual precipitation: 9 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 170 days

Map Unit Composition

Ralls and similar soils: 40 percent
Cheviot and similar soils: 30 percent
Lickskillet and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Ralls

Setting

Landform: Canyonsides
Aspect (representative): Northeast
Aspect (range): North to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess
Slope range: 45 to 90 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 5 inches; stony silt loam
5 to 17 inches; silt loam
17 to 36 inches; gravelly silt loam
36 to 47 inches; gravelly silt loam
47 to 60 inches; very gravelly silt loam

Characteristics of Cheviot

Setting

Landform: Canyonsides
Aspect (representative): Northeast
Aspect (range): North to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess
Slope range: 45 to 90 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Characteristics of Lickskillet

Setting

Landform: Canyonsides

Aspect (representative): Northeast

Aspect (range): North to east (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 45 to 90 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 8 inches; cobbly silt loam

8 to 18 inches; very gravelly silt loam

18 to 22 inches; unweathered bedrock

Dissimilar Minor Components

Mikkalo soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

390—Renslow-Ralls-Wipple complex, 2 to 15 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 400 to 2,300 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Renslow and similar soils: 45 percent

Ralls and similar soils: 30 percent

Wipple and similar soils: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Renslow

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 1

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 13 inches; silt loam

13 to 20 inches; silt loam

20 to 60 inches; silt loam

Characteristics of Ralls

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 5 inches; stony silt loam

5 to 17 inches; silt loam

17 to 36 inches; gravelly silt loam

36 to 47 inches; gravelly silt loam

47 to 60 inches; very gravelly silt loam

Characteristics of Wipple

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 10 to 20 inches to abrupt textural change

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 1

Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 7 inches; cobbly clay loam

7 to 12 inches; very cobbly clay loam

12 to 29 inches; very cobbly clay

29 to 60 inches; extremely cobbly clay loam

Dissimilar Minor Components

Bickleton soils

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

391—Broadax-Colockum-Tronsen complex, 5 to 15 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,000 to 2,500 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Map Unit Composition

Broadax and similar soils: 45 percent

Colockum and similar soils: 30 percent

Tronsen and similar soils: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Broadax

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 17 inches; silt loam

17 to 38 inches; silt loam

38 to 60 inches; silt loam

Characteristics of Colockum

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over mixed slope alluvium and colluvium derived from basalt

Slope range: 5 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 20 inches; silt loam

20 to 34 inches; silt loam

34 to 46 inches; silty clay loam

46 to 60 inches; gravelly silty clay loam

Characteristics of Tronsen**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess and volcanic ash in the upper part

Slope range: 5 to 15 percent

Depth to restrictive feature: 7 to 11 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 8 inches; stony ashy silt loam

8 to 14 inches; very gravelly clay loam

14 to 60 inches; very cobbly clay loam

Dissimilar Minor Components**Bakeoven soils**

Percentage of map unit: 5 percent

Van Nostern soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

394—Cheviot-Ralls-Wipple complex, 2 to 15 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 700 to 1,400 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Cheviot and similar soils: 40 percent

Ralls and similar soils: 25 percent

Wipple and similar soils: 25 percent

Dissimilar minor components: 10 percent

Characteristics of Cheviot**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 7 inches; very stony silt loam
 7 to 40 inches; very gravelly silt loam
 40 to 60 inches; extremely cobbly silt loam

Characteristics of Ralls**Setting**

Landform: Hillslopes
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 5 inches; stony silt loam
 5 to 17 inches; silt loam
 17 to 36 inches; gravelly silt loam
 36 to 47 inches; gravelly silt loam
 47 to 60 inches; very gravelly silt loam

Characteristics of Wipple**Setting**

Landform: Hillslopes
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess
Slope range: 2 to 15 percent
Depth to restrictive feature: 10 to 20 inches to abrupt textural change
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 6 inches; very stony clay loam

6 to 23 inches; very cobbly clay loam

23 to 40 inches; very cobbly clay

40 to 60 inches; extremely cobbly clay loam

Dissimilar Minor Components**Bakeoven soils**

Percentage of map unit: 5 percent

Rubble land

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

395—Cheviot-Ralls-Wipple complex, 15 to 30 percent south slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 400 to 2,600 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Cheviot and similar soils: 40 percent

Ralls and similar soils: 25 percent

Wipple and similar soils: 25 percent

Dissimilar minor components: 10 percent

Characteristics of Cheviot**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt and loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Characteristics of Ralls

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 5 inches; stony silt loam

5 to 17 inches; silt loam

17 to 36 inches; gravelly silt loam

36 to 47 inches; gravelly silt loam

47 to 60 inches; very gravelly silt loam

Characteristics of Wipple

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 10 to 20 inches to abrupt textural change

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 1

Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 6 inches; very stony clay loam

6 to 23 inches; very cobbly clay loam

23 to 40 inches; very cobbly clay

40 to 60 inches; extremely cobbly clay loam

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Rubble land

Percentage of map unit: 5 percent

Major Use

Livestock grazing

396—Renslow-Ralls-Wipple complex, 15 to 30 percent north slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 400 to 2,300 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Renslow and similar soils: 55 percent

Ralls and similar soils: 20 percent

Wipple and similar soils: 15 percent

Dissimilar minor components: 10 percent

Characteristics of Renslow

Setting

Landform: Hillslopes

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Loess over basalt

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 1

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 13 inches; silt loam

13 to 20 inches; silt loam

20 to 60 inches; silt loam

Characteristics of Ralls

Setting

Landform: Hillslopes

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 5 inches; stony silt loam

5 to 17 inches; silt loam

17 to 36 inches; gravelly silt loam

36 to 47 inches; gravelly silt loam

47 to 60 inches; very gravelly silt loam

Characteristics of Wipple

Setting

Landform: Hillslopes

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 10 to 20 inches to abrupt textural change

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 1

Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 7 inches; cobbly clay loam

7 to 12 inches; very cobbly clay loam

12 to 29 inches; very cobbly clay

29 to 60 inches; extremely cobbly clay loam

Dissimilar Minor Components

Bickleton soils

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

420—Endicott-Moxee complex, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 800 to 1,500 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 140 to 160 days

Map Unit Composition

Endicott and similar soils: 50 percent

Moxee and similar soils: 45 percent

Dissimilar minor component: 5 percent

Characteristics of Endicott

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 10 inches; silt loam

10 to 30 inches; silt loam

30 to 34 inches; cemented material

Characteristics of Moxee

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 2 to 5 percent

Depth to restrictive feature: 10 to 20 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 4e

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 5 inches; very fine sandy loam

5 to 11 inches; silt loam

11 to 21 inches; cemented material

Dissimilar Minor Component

Walla Walla soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

421—Endicott-Moxee complex, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 800 to 1,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Endicott and similar soils: 60 percent
Moxee and similar soils: 35 percent
Dissimilar minor component: 5 percent

Characteristics of Endicott

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 5 to 10 percent
Depth to restrictive feature: 20 to 40 inches to a strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 12 inches; silt loam
12 to 33 inches; silt loam
33 to 37 inches; cemented material

Characteristics of Moxee

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 5 to 10 percent
Depth to restrictive feature: 10 to 20 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 6e

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 5 inches; very fine sandy loam

5 to 11 inches; silt loam

11 to 21 inches; cemented material

Dissimilar Minor Component

Walla Walla soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

422—Endicott-Moxee complex, 10 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 800 to 1,500 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 140 to 160 days

Map Unit Composition

Endicott and similar soils: 60 percent

Moxee and similar soils: 35 percent

Dissimilar minor component: 5 percent

Characteristics of Endicott

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 10 to 15 percent

Depth to restrictive feature: 20 to 40 inches to a strongly cemented duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 31 inches; silt loam

31 to 35 inches; cemented material

Characteristics of Moxee

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 10 to 15 percent

Depth to restrictive feature: 10 to 20 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 6e

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 5 inches; very fine sandy loam

5 to 11 inches; silt loam

11 to 21 inches; cemented material

Dissimilar Minor Component

Walla Walla soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

423—Endicott silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 900 to 1,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Endicott and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Endicott

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 2 to 5 percent
Depth to restrictive feature: 20 to 40 inches to a strongly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 10 inches; silt loam
 10 to 30 inches; silt loam
 30 to 34 inches; cemented material

Dissimilar Minor Components

Moxee soils

Percentage of map unit: 5 percent

Walla Walla soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

424—Endicott silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 900 to 1,500 feet
Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 140 to 160 days

Map Unit Composition

Endicott and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Endicott

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to a strongly cemented duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 12 inches; silt loam

12 to 33 inches; silt loam

33 to 37 inches; cemented material

Dissimilar Minor Components

Moxee soils

Percentage of map unit: 5 percent

Walla Walla soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

425—Endicott silt loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 900 to 1,500 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 140 to 160 days

Map Unit Composition

Endicott and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Endicott

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 10 to 15 percent

Depth to restrictive feature: 20 to 40 inches to a strongly cemented duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 31 inches; silt loam

31 to 35 inches; cemented material

Dissimilar Minor Components

Moxee soils

Percentage of map unit: 5 percent

Walla Walla soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

433—Warden silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Warden and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Warden**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over lacustrine deposits

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 3e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; silt loam

4 to 21 inches; silt loam

21 to 60 inches; stratified very fine sandy loam to silt loam

Dissimilar Minor Component**Mikkalo soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

435—Warden silt loam, 2 to 5 percent slopes**Map Unit Setting**

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Warden and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Warden

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over lacustrine deposits

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; silt loam

4 to 21 inches; silt loam

21 to 60 inches; stratified very fine sandy loam to silt loam

Dissimilar Minor Components

Mikkalo soils

Percentage of map unit: 5 percent

Umapine soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

436—Warden silt loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Warden and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Warden**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over lacustrine deposits

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6c

Land capability subclass (irrigated): 1

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; silt loam

4 to 21 inches; silt loam

21 to 60 inches; stratified very fine sandy loam to silt loam

Dissimilar Minor Components**Mikkalo soils**

Percentage of map unit: 5 percent

Umapine soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

437—Warden silt loam, 10 to 15 percent slopes**Map Unit Setting**

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Warden and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Warden

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over lacustrine deposits

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 3 inches; silt loam

3 to 15 inches; silt loam

15 to 60 inches; stratified very fine sandy loam to silt loam

Dissimilar Minor Component

Prosser soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

438—Warden silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Warden and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Warden

Setting

Landform: Escarpments

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Loess over lacustrine deposits

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 6e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 3 inches; silt loam

3 to 15 inches; silt loam

15 to 60 inches; stratified very fine sandy loam to silt loam

Dissimilar Minor Components

Prosser soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

440—Kahlotus silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 400 to 1,300 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Kahlotus and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Kahlotus

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): Southeast to south (clockwise)

Properties and qualities

Parent material: Glaciofluvial deposits mixed with loess

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 37 inches; silt loam

37 to 60 inches; silt loam

Dissimilar Minor Component

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

441—Kahlotus silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 400 to 1,300 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Kahlotus and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Kahlotus

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Glaciofluvial deposits mixed with loess

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 33 inches; silt loam

33 to 60 inches; silt loam

Dissimilar Minor Component**Rock outcrop**

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

442—Kahlotus silt loam, 10 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 400 to 1,300 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Kahlotus and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Kahlotus**Setting**

Landform: Terrace escarpments

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Glaciofluvial deposits mixed with loess

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 37 inches; silt loam

37 to 60 inches; silt loam

Dissimilar Minor Component

Rock outcrop

Percentage of map unit: 10 percent

Major Uses

Livestock grazing and crop production

443—Kahlotus silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 400 to 1,300 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Kahlotus and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Kahlotus

Setting

Landform: Terrace escarpments

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Glaciofluvial deposits mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 37 inches; silt loam

37 to 60 inches; silt loam

Dissimilar Minor Component

Rock outcrop

Percentage of map unit: 10 percent

Major Uses

Crop production and livestock grazing

444—Kahlotus-Kennewick complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 400 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Kahlotus and similar soils: 50 percent

Kennewick and similar soils: 40 percent

Dissimilar minor component: 10 percent

Characteristics of Kahlotus

Setting

Landform: Terrace escarpments

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Glaciofluvial deposits mixed with loess

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups*Land capability subclass (nonirrigated): 7e**Ecological site: LOAMY 9-15 PZ (R008XY102WA)***Typical profile**

0 to 10 inches; silt loam

10 to 37 inches; silt loam

37 to 60 inches; silt loam

Characteristics of Kennewick**Setting***Landform: Terrace escarpments**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Lacustrine deposits**Slope range: 30 to 60 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 12 inches)***Interpretive groups***Land capability subclass (nonirrigated): 7e**Ecological site: CALCAREOUS LOAM 6-9 PZ (R007XY701WA)***Typical profile**

0 to 10 inches; silt loam

10 to 60 inches; silt loam

Dissimilar Minor Component**Rock outcrop***Percentage of map unit: 10 percent****Major Use***

Livestock grazing

445—Kahlotus-Rock outcrop complex, 2 to 15 percent slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 300 to 1,000 feet**Mean annual precipitation: 9 to 12 inches**Mean annual air temperature: 48 to 52 degrees F**Frost-free period: 150 to 180 days*

Map Unit Composition

Kahlotus and similar soils: 70 percent

Rock outcrop: 20 percent

Dissimilar minor component: 10 percent

Characteristics of Kahlotus**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Glaciofluvial deposits mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 37 inches; silt loam

37 to 60 inches; silt loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 2 to 15 percent

Land capability subclass: 8s

Dissimilar Minor Component**Ritzville soils**

Percentage of map unit: 10 percent

Major Uses

Crop production and livestock grazing

450—Kennewick silt loam, 2 to 5 percent slopes**Map Unit Setting**

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 400 to 1,100 feet

Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 150 to 180 days

Map Unit Composition

Kennewick and similar soils: 95 percent
Dissimilar minor components: 5 percent

Characteristics of Kennewick

Setting

Landform: Terraces
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits
Slope range: 2 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 2e
Ecological site: CALCAREOUS LOAM 6-9 PZ (R007XY701WA)

Typical profile

0 to 10 inches; silt loam
 10 to 60 inches; silt loam

Dissimilar Minor Components

Quincy soils

Percentage of map unit: 2 percent

Warden soils

Percentage of map unit: 2 percent

Hezel soils

Percentage of map unit: 1 percent

Major Uses

Livestock grazing and crop production

451—Kennewick silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Basins
Major land resource area (MLRA): 7
Elevation: 400 to 1,100 feet
Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Kennewick and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Kennewick

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 3e

Ecological site: CALCAREOUS LOAM 6-9 PZ (R007XY701WA)

Typical profile

0 to 10 inches; silt loam

10 to 60 inches; silt loam

Dissimilar Minor Components

Warden soils

Percentage of map unit: 5 percent

Quincy soils

Percentage of map unit: 3 percent

Hezel soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and crop production

453—Kennewick silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 400 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Kennewick and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Kennewick

Setting

Landform: Terrace escarpments

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Lacustrine deposits

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Land capability subclass (irrigated): 6e

Ecological site: CALCAREOUS LOAM 6-9 PZ (R007XY701WA)

Typical profile

0 to 10 inches; silt loam

10 to 60 inches; silt loam

Dissimilar Minor Components

Warden soils

Percentage of map unit: 8 percent

Hezel soils

Percentage of map unit: 7 percent

Major Uses

Livestock grazing and crop production

485—Bakeoven very cobbly loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 600 to 2,200 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 130 to 180 days

Map Unit Composition

Bakeoven and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Bakeoven**Setting**

Landform: Canyon shoulder slopes

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components**Mikkalo soils**

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Starbuck soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

487—Bakeoven very cobbly loam, 0 to 15 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 600 to 3,300 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 130 to 180 days

Map Unit Composition

Bakeoven and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Bakeoven

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 0 to 15 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Mikkalo soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Starbuck soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

488—Camaspatch very cobbly silt loam, 15 to 45 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,900 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Camaspatch and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Camaspatch

Setting

Landform: Hillslopes

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 45 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)

Typical profile

0 to 4 inches; very cobbly silt loam

4 to 7 inches; very gravelly clay loam

7 to 15 inches; very gravelly clay

15 to 19 inches; unweathered bedrock

Dissimilar Minor Components

Badge soils

Percentage of map unit: 5 percent

Lickskillet soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

489—Rock Creek stony silt loam, 0 to 30 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 2,700 to 3,900 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Rock Creek and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Rock Creek

Setting

Landform: Plateaus

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 0 to 30 percent

Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 2 inches; stony silt loam

2 to 10 inches; very cobbly clay

10 to 14 inches; unweathered bedrock

Dissimilar Minor Component

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

495—Konner silt loam, 0 to 3 percent slopes

Map Unit Setting

General landscape: River valleys

Major land resource area (MLRA): 8

Elevation: 1,500 to 1,800 feet

Mean annual precipitation: 16 to 18 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 90 to 120 days

Map Unit Composition

Konner and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Konner**Setting**

Landform: Flood plains

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium

Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: Occasional (see Water Features table)

Ponding frequency: None

Seasonal high water table (minimum depth): About 31 to 48 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 22 inches; silt loam

22 to 31 inches; silty clay loam

31 to 60 inches; silty clay loam

Dissimilar Minor Component**Munset soils**

Percentage of map unit: 10 percent

Landform: Depressions

Major Uses

Livestock grazing and crop production

533—Sagehill fine sandy loam, 5 to 10 percent slopes**Map Unit Setting**

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Sagehill and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Sagehill

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits with a mantle of loess

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; fine sandy loam

4 to 24 inches; fine sandy loam

24 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

Hezel soils

Percentage of map unit: 3 percent

Kennewick soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and crop production

534—Sagehill fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 600 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Sagehill and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Sagehill**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits with a mantle of loess

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3c

Land capability subclass (irrigated): 1

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; fine sandy loam

4 to 24 inches; fine sandy loam

24 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components**Kennewick soils**

Percentage of map unit: 3 percent

Hezel soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and crop production

535—Sagehill-Kiona complex, 2 to 30 percent slopes**Map Unit Setting**

General landscape: Basins and adjacent hills

Major land resource area (MLRA): 7

Elevation: 300 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Sagehill and similar soils: 55 percent

Kiona and similar soils: 35 percent

Dissimilar minor components: 10 percent

Characteristics of Sagehill

Setting

Landform: Dissected terraces

Aspect (representative): Southeast

Aspect (range): Northeast to south (clockwise)

Properties and qualities

Parent material: Lacustrine deposits with a mantle of loess

Slope range: 2 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; fine sandy loam

4 to 24 inches; fine sandy loam

24 to 60 inches; stratified fine sandy loam to silt loam

Characteristics of Kiona

Setting

Landform: Hillslopes

Aspect (representative): Southeast

Aspect (range): Northeast to south (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 7 inches; stony very fine sandy loam
 7 to 25 inches; very cobbly silt loam
 25 to 60 inches; extremely cobbly silt loam

Dissimilar Minor Components**Quincy soils**

Percentage of map unit: 5 percent

Burbank soils

Percentage of map unit: 3 percent

Kennewick soils

Percentage of map unit: 2 percent

Major Use

Livestock grazing

536—Sagehill fine sandy loam, 2 to 5 percent slopes***Map Unit Setting***

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Sagehill and similar soils: 95 percent

Dissimilar minor components: 5 percent

Characteristics of Sagehill**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits with a mantle of loess

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; fine sandy loam

4 to 24 inches; fine sandy loam

24 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components**Kennewick soils**

Percentage of map unit: 3 percent

Hezel soils

Percentage of map unit: 2 percent

Major Uses

Livestock grazing and crop production

537—Sagehill fine sandy loam, 10 to 15 percent slopes***Map Unit Setting***

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Sagehill and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Sagehill**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Lacustrine deposits with a mantle of loess

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile

0 to 4 inches; fine sandy loam

4 to 24 inches; fine sandy loam

24 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components**Hezel soils**

Percentage of map unit: 5 percent

Kennewick soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

538—Sagehill fine sandy loam, 15 to 30 percent slopes***Map Unit Setting***

General landscape: Basins

Major land resource area (MLRA): 7

Elevation: 300 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Sagehill and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Sagehill**Setting**

Landform: Terrace escarpments

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Lacustrine deposits with a mantle of loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile

0 to 4 inches; fine sandy loam

4 to 24 inches; fine sandy loam

24 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

Kennewick soils

Percentage of map unit: 5 percent

Kiona soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

540—Walla Walla silt loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 200 to 1,900 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 0 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 2e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 50 inches; silt loam

50 to 60 inches; silt loam

Dissimilar Minor Component**Endicott soils**

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

541—Walla Walla silt loam, 5 to 10 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 200 to 1,900 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Walla Walla**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 50 inches; silt loam

50 to 60 inches; silt loam

Dissimilar Minor Components**Endicott soils**

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

542—Walla Walla silt loam, 10 to 15 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 200 to 1,900 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Walla Walla**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 50 inches; silt loam

50 to 60 inches; silt loam

Dissimilar Minor Components**Endicott soils**

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

543—Walla Walla silt loam, 15 to 30 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 200 to 1,900 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Walla Walla**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam

11 to 50 inches; silt loam

50 to 60 inches; silt loam

Dissimilar Minor Components**Endicott soils**

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

550—Walla Walla silt loam, cemented substratum, 0 to 5 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 850 to 1,700 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 0 to 5 percent
Depth to restrictive feature: 40 to 60 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e
Land capability subclass (irrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 11 inches; silt loam
 11 to 40 inches; silt loam
 40 to 50 inches; silt loam
 50 to 60 inches; cemented material

Dissimilar Minor Component

Endicott soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

551—Walla Walla silt loam, cemented substratum, 5 to 10 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 850 to 1,700 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 5 to 10 percent

Depth to restrictive feature: 40 to 60 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 11 inches; silt loam

11 to 40 inches; silt loam

40 to 50 inches; silt loam

50 to 60 inches; cemented material

Dissimilar Minor Components

Endicott soils

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

552—Walla Walla silt loam, cemented substratum, 10 to 15 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 850 to 1,700 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 10 to 15 percent
Depth to restrictive feature: 40 to 60 inches to an indurated duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 11 inches; silt loam
 11 to 40 inches; silt loam
 40 to 50 inches; silt loam
 50 to 60 inches; cemented material

Dissimilar Minor Components

Endicott soils

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

555—Walla Walla very fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 850 to 1,300 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 0 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 15 inches; very fine sandy loam

15 to 50 inches; silt loam

50 to 60 inches; silt loam

Dissimilar Minor Components

Endicott soils

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

556—Walla Walla very fine sandy loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 850 to 1,300 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 5 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 15 inches; very fine sandy loam
 15 to 50 inches; silt loam
 50 to 60 inches; silt loam

Dissimilar Minor Components

Endicott soils

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

557—Walla Walla very fine sandy loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 850 to 1,300 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 15 inches; very fine sandy loam

15 to 50 inches; silt loam

50 to 60 inches; silt loam

Dissimilar Minor Components

Endicott soils

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

558—Walla Walla very fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 200 to 1,600 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes

Aspect (representative): Northwest

Aspect (range): West to northwest (clockwise)

Properties and qualities

Parent material: Loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Land capability subclass (irrigated): 6e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 15 inches; very fine sandy loam

15 to 50 inches; silt loam

50 to 60 inches; silt loam

Dissimilar Minor Components

Endicott soils

Percentage of map unit: 5 percent

Olex soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

560—Olex silt loam, 15 to 30 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 300 to 1,400 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Olex and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Olex**Setting**

Landform: Terrace escarpments

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Loess over gravelly alluvium

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 10 inches; silt loam

10 to 16 inches; gravelly silt loam

16 to 25 inches; extremely gravelly silt loam

25 to 60 inches; extremely gravelly loam

Dissimilar Minor Components**Endicott soils**

Percentage of map unit: 5 percent

Walla Walla soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

561—Olex very cobbly silt loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 300 to 1,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition

Olex and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Olex

Setting

Landform: Terrace escarpments
Aspect (representative): Southwest
Aspect (range): South to west (clockwise)

Properties and qualities

Parent material: Loess over gravelly alluvium
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 9 inches; very cobbly silt loam
 9 to 20 inches; gravelly silt loam
 20 to 60 inches; extremely gravelly loam

Dissimilar Minor Components

Endicott soils

Percentage of map unit: 5 percent

Walla Walla soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

562—Olex silt loam, 2 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 300 to 1,400 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Map Unit Composition

Olex and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Olex**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over gravelly alluvium

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 10 inches; silt loam

10 to 16 inches; gravelly silt loam

16 to 25 inches; extremely gravelly silt loam

25 to 60 inches; extremely gravelly loam

Dissimilar Minor Components**Endicott soils**

Percentage of map unit: 5 percent

Walla Walla soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

570—Bolicker silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 8

Elevation: 1,100 to 1,800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 140 to 160 days

Map Unit Composition

Bolicker and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Bolicker

Setting

Landform: Mountain footslopes

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Loess over colluvium derived from basalt

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Sodium adsorption ratio about 1

Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 18 inches; silt loam

18 to 25 inches; silt loam

25 to 45 inches; silt loam

45 to 60 inches; loam

Dissimilar Minor Component

Asotin soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

571—Bolicker silt loam, 30 to 40 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 8

Elevation: 1,100 to 1,800 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Bolicker and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Bolicker

Setting

Landform: Mountain backslopes
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess over colluvium derived from basalt
Slope range: 30 to 40 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 6e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 18 inches; silt loam
18 to 25 inches; silt loam
25 to 45 inches; silt loam
45 to 60 inches; loam

Dissimilar Minor Component

Asotin soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

580—Benwy silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 500 to 2,100 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 130 to 170 days

Map Unit Composition

Benwy and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Benwy

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and old alluvium

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 2e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 4 inches; silt loam

4 to 10 inches; silt loam

10 to 37 inches; silt loam

37 to 46 inches; gravelly clay loam

46 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Ritzville soils

Percentage of map unit: 4 percent

Cheviot soils

Percentage of map unit: 3 percent

Mikkalo soils

Percentage of map unit: 3 percent

Major Uses

Livestock grazing and crop production

581—Benwy silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 500 to 2,100 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Benwy and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Benwy

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and old alluvium

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 4 inches; silt loam

4 to 10 inches; silt loam

10 to 37 inches; silt loam

37 to 46 inches; gravelly clay loam

46 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Ritzville soils

Percentage of map unit: 4 percent

Cheviot soils

Percentage of map unit: 3 percent

Mikkalo soils

Percentage of map unit: 3 percent

Major Uses

Livestock grazing and crop production

582—Benwy silt loam, 10 to 20 percent north slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 500 to 2,100 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 130 to 170 days

Map Unit Composition

Benwy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Benwy

Setting

Landform: Hillslopes
Aspect (representative): Northeast
Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Loess and old alluvium
Slope range: 10 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 4 inches; silt loam
4 to 10 inches; silt loam
10 to 37 inches; silt loam
37 to 46 inches; gravelly clay loam
46 to 60 inches; gravelly silt loam

Dissimilar Minor Components

Cheviot soils

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Ritzville soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

583—Benwy silt loam, cemented substratum, 10 to 20 percent south slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 500 to 2,100 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Benwy and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Benwy

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Loess and old alluvium

Slope range: 10 to 20 percent

Depth to restrictive feature: 40 to 60 inches to an indurated duripan

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 11 inches; silt loam

11 to 15 inches; silt loam

15 to 28 inches; clay loam

28 to 41 inches; gravelly silt loam

41 to 45 inches; cemented material

Dissimilar Minor Components

Cheviot soils

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

584—Mikkalo-Bakeoven complex, 15 to 30 percent slopes**Map Unit Setting**

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 300 to 2,700 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 145 to 165 days

Map Unit Composition

Mikkalo and similar soils: 50 percent

Bakeoven and similar soils: 45 percent

Dissimilar minor component: 5 percent

Characteristics of Mikkalo**Setting**

Landform: Canyon shoulder slopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess over basalt

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 15 inches; silt loam

15 to 26 inches; silt loam

26 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Characteristics of Bakeoven**Setting**

Landform: Canyon shoulder slopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Component**Rock outcrop**

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

585—Mikkalo-Bakeoven complex, 2 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 300 to 2,700 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 145 to 165 days

Map Unit Composition

Mikkalo and similar soils: 50 percent

Bakeoven and similar soils: 45 percent

Dissimilar minor component: 5 percent

Characteristics of Mikkalo**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 15 inches; silt loam

15 to 26 inches; silt loam

26 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Characteristics of Bakeoven

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Residuum derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile

0 to 4 inches; very cobbly loam

4 to 10 inches; very gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Component

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

586—Mikkalo silt loam, 2 to 5 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 300 to 2,800 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 145 to 165 days

Map Unit Composition

Mikkalo and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Mikkalo**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 15 inches; silt loam

15 to 26 inches; silt loam

26 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components**Bakeoven soils**

Percentage of map unit: 5 percent

Lickskillet soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

587—Mikkalo silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 300 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 145 to 165 days

Map Unit Composition

Mikkalo and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Mikkalo

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt
Slope range: 5 to 10 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 15 inches; silt loam
15 to 26 inches; silt loam
26 to 38 inches; silt loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Lickskillet soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

588—Mikkalo silt loam, 15 to 30 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 700 to 2,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 145 to 165 days

Map Unit Composition

Mikkalo and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Mikkalo**Setting**

Landform: Dissected plateaus

Aspect (representative): East

Aspect (range): North to south (clockwise)

Properties and qualities

Parent material: Loess over basalt

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 15 inches; silt loam

15 to 26 inches; silt loam

26 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components**Bakeoven soils**

Percentage of map unit: 5 percent

Lickskillet soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

589—Mikkalo silt loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 700 to 2,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 145 to 165 days

Map Unit Composition

Mikkalo and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Mikkalo

Setting

Landform: Dissected plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt
Slope range: 10 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 15 inches; silt loam
15 to 26 inches; silt loam
26 to 38 inches; silt loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

Bakeoven soils

Percentage of map unit: 5 percent

Lickskillet soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

590—Mikkalo fine sandy loam, 0 to 2 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 300 to 500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 145 to 165 days

Map Unit Composition

Mikkalo and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Mikkalo**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 0 to 2 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 8 inches; fine sandy loam

8 to 26 inches; silt loam

26 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components**Bakeoven soils**

Percentage of map unit: 5 percent

Lickskillet soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

591—Lickskillet-Mikkalo complex, 0 to 2 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 300 to 800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 120 to 180 days

Map Unit Composition

Lickskillet and similar soils: 55 percent
Mikkalo and similar soils: 40 percent
Dissimilar minor component: 5 percent

Characteristics of Lickskillet

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 0 to 2 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 8 inches; cobbly silt loam
8 to 18 inches; very gravelly silt loam
18 to 22 inches; unweathered bedrock

Characteristics of Mikkalo

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt
Slope range: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 15 inches; silt loam

15 to 26 inches; silt loam

26 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Component

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

600—Meloza clay, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 400 to 1,300 feet

Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 145 to 165 days

Map Unit Composition

Meloza and similar soils: 80 percent

Dissimilar minor components: 20 percent

Characteristics of Meloza

Setting

Landform: Alluvial fans

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Fine-textured alluvium

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Very slightly saline (about 2 millimhos per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 3 inches; clay

3 to 35 inches; clay

35 to 60 inches; clay

Dissimilar Minor Components

Benwy soils

Percentage of map unit: 5 percent

Cheviot soils

Percentage of map unit: 5 percent

Ralls soils

Percentage of map unit: 5 percent

Wipple soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

670—Wato silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 500 to 1,100 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 140 to 170 days

Map Unit Composition

Wato and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Wato

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over glaciofluvial deposits

Slope range: 5 to 10 percent

Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 19 inches; silt loam

19 to 36 inches; loam

36 to 49 inches; gravelly sandy loam

49 to 60 inches; very gravelly loamy sand

Dissimilar Minor Component

Lickskillet soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

671—Wato silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 500 to 1,100 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 140 to 170 days

Map Unit Composition

Wato and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Wato

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over glaciofluvial deposits

Slope range: 2 to 5 percent

Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 19 inches; silt loam

19 to 36 inches; loam

36 to 49 inches; gravelly sandy loam

49 to 60 inches; very gravelly loamy sand

Dissimilar Minor Component

Lickskillet soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

672—Wato silt loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 500 to 1,100 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 140 to 170 days

Map Unit Composition

Wato and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Wato

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over glaciofluvial deposits

Slope range: 10 to 15 percent

Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups*Land capability subclass (nonirrigated): 3e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 19 inches; silt loam

19 to 36 inches; loam

36 to 49 inches; gravelly sandy loam

49 to 60 inches; very gravelly loamy sand

Dissimilar Minor Component**Lickskillet soils***Percentage of map unit: 5 percent****Major Uses***

Crop production and livestock grazing

681—Nansene silt loam, 5 to 10 percent slopes***Map Unit Setting****General landscape: Hills**Major land resource area (MLRA): 8**Elevation: 700 to 1,000 feet**Mean annual precipitation: 11 to 15 inches**Mean annual air temperature: 48 to 52 degrees F**Frost-free period: 135 to 170 days****Map Unit Composition****Nansene and similar soils: 95 percent**Dissimilar minor component: 5 percent****Characteristics of Nansene*****Setting***Landform: Hillslopes**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Loess**Slope range: 5 to 10 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline (about 1 millimho per centimeter)**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 10.8 inches)***Interpretive groups***Land capability subclass (nonirrigated): 3e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)*

Typical profile

0 to 18 inches; silt loam
 18 to 50 inches; silt loam
 50 to 60 inches; silt loam

Dissimilar Minor Component**Ritzville soils**

Percentage of map unit: 5 percent

Major Use

Livestock grazing

682—Nansene silt loam, 10 to 15 percent slopes***Map Unit Setting***

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 700 to 1,700 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 170 days

Map Unit Composition

Nansene and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Nansene**Setting**

Landform: Hillslopes
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 10 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 18 inches; silt loam
 18 to 50 inches; silt loam
 50 to 60 inches; silt loam

Dissimilar Minor Component**Ritzville soils**

Percentage of map unit: 5 percent

Major Use

Livestock grazing

700—Urban land

Description: Areas altered or obstructed by urban works or structures so that identification of soils is not feasible

Land capability class: 8

711—Pits, quarry

Description: Open excavations on uplands from which soil and underlying material have been removed, exposing bare bedrock

Land capability class: 8

721—Rock outcrop-Rubble land-Haploxerolls complex, very steep***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 100 to 3,000 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 150 days

Map Unit Composition

Rock outcrop: 45 percent

Rubble land: 30 percent

Haploxerolls and similar soils: 25 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 0 to 90 percent

Land capability subclass: 8s

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)

Slope range: 30 to 90 percent

Land capability subclass: 8s

Characteristics of Haploxerolls

Setting

Landform: Escarpments

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 70 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 13 inches; gravelly sandy loam

13 to 24 inches; very gravelly sandy loam

24 to 60 inches; very cobbly silt loam

Major Use

Livestock grazing

724C—Haploxerolls-Rubble land complex, steep

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 400 to 1,700 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 150 days

Map Unit Composition

Haploxerolls and similar soils: 50 percent

Rubble land: 50 percent

Characteristics of Haploxerolls

Setting

Landform: Escarpments

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 50 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 13 inches; gravelly sandy loam
13 to 24 inches; very gravelly sandy loam
24 to 60 inches; very cobbly silt loam

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)
Slope range: 30 to 90 percent
Land capability subclass: 8s

Major Use

Livestock grazing

724D—Haploxerolls-Rubble land complex, very steep**Map Unit Setting**

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 400 to 1,700 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Haploxerolls and similar soils: 50 percent
Rubble land: 50 percent

Characteristics of Haploxerolls**Setting**

Landform: Escarpments
Aspect (representative): Southeast
Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 50 to 70 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile

0 to 13 inches; gravelly sandy loam

13 to 24 inches; very gravelly sandy loam

24 to 60 inches; very cobbly silt loam

Characteristics of Rubble Land

Description of areas: Colluvial fragmental deposits of gravel, cobbles, stones, and boulders; voids between fragments have little if any soil material; typically underlain by bedrock at a depth of more than 60 inches (152 centimeters)

Slope range: 30 to 90 percent

Land capability subclass: 8s

Major Use

Livestock grazing

725—Cauley silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 100 to 600 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Cauley and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Cauley

Setting

Landform: Scoured floodwater terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Floodwater alluvium mixed with loess

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 15 inches; silt loam

15 to 60 inches; gravelly silt loam

Dissimilar Minor Component

Wind River soils

Percentage of map unit: 5 percent

Major Use

Timber production

726—Cauley silt loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 100 to 600 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Cauley and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Cauley

Setting

Landform: Scoured floodwater terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Floodwater alluvium mixed with loess

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 15 inches; silt loam

15 to 60 inches; gravelly silt loam

Dissimilar Minor Component**Wind River soils***Percentage of map unit:* 5 percent***Major Use***

Timber production

727—Cauley silt loam, 15 to 30 percent slopes***Map Unit Setting****General landscape:* Hills*Major land resource area (MLRA):* 6*Elevation:* 100 to 600 feet*Mean annual precipitation:* 18 to 25 inches*Mean annual air temperature:* 46 to 48 degrees F*Frost-free period:* 100 to 140 days***Map Unit Composition****Cauley and similar soils:* 95 percent*Dissimilar minor component:* 5 percent***Characteristics of Cauley*****Setting***Landform:* Hillslopes*Aspect (representative):* West*Aspect (range):* South to northwest (clockwise)**Properties and qualities***Parent material:* Floodwater alluvium mixed with loess*Slope range:* 15 to 30 percent*Depth to restrictive feature:* None within a depth of 60 inches*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* High (about 10 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 4e*Plant community class:* Oregon white oak/bluebunch wheatgrass (HOG111)**Typical profile**

0 to 15 inches; silt loam

15 to 60 inches; gravelly silt loam

Dissimilar Minor Component**Wind River soils**

Percentage of map unit: 5 percent

Major Use

Timber production

729—Cauley silt loam, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 100 to 600 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Cauley and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Cauley**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Floodwater alluvium mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 15 inches; silt loam

15 to 60 inches; gravelly silt loam

Dissimilar Minor Component**Wind River soils**

Percentage of map unit: 5 percent

Major Use

Timber production

730—Stacker-Horseflat complex, 2 to 15 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 250 to 3,200 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 55 percent

Horseflat and similar soils: 30 percent

Dissimilar minor components: 15 percent

Characteristics of Stacker**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam

18 to 28 inches; silty clay loam

28 to 32 inches; unweathered bedrock

Characteristics of Horseflat**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 8 percent

Fisherhill soils

Percentage of map unit: 7 percent

Major Uses

Crop production and livestock grazing

731—Stacker-Horseflat complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 250 to 3,200 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 50 percent

Horseflat and similar soils: 35 percent

Dissimilar minor components: 15 percent

Characteristics of Stacker

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess over basalt

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam
18 to 28 inches; silty clay loam
28 to 32 inches; unweathered bedrock

Characteristics of Horseflat**Setting**

Landform: Hillslopes
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 15 to 30 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam
4 to 12 inches; very cobbly loam
12 to 15 inches; very cobbly loam
15 to 19 inches; unweathered bedrock

Dissimilar Minor Components**Rock outcrop**

Percentage of map unit: 8 percent

Fisherhill soils

Percentage of map unit: 7 percent

Major Uses

Crop production and livestock grazing

732—Stacker-Horseflat complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 250 to 3,200 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 45 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 50 percent

Horseflat and similar soils: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Stacker

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess over basalt

Slope range: 30 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam

18 to 28 inches; silty clay loam

28 to 32 inches; unweathered bedrock

Characteristics of Horseflat

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Dissimilar Minor Components

Fisherhill soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

737—Wind River fine sandy loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 6

Elevation: 100 to 300 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Wind River and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Wind River

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Old alluvium or outwash

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 6 inches; fine sandy loam

6 to 42 inches; fine sandy loam

42 to 60 inches; loamy fine sand

Dissimilar Minor Component

Cauley soils

Percentage of map unit: 5 percent

Major Use

Timber production

742—Gwin cobbly silt loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 300 to 3,000 feet

Mean annual precipitation: 14 to 28 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Gwin and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Gwin

Setting

Landform: Canyons

Aspect (representative): Northwest

Aspect (range): Southwest to north (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt

Slope range: 30 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups*Land capability subclass (nonirrigated): 7e**Ecological site: STONY 15+ PZ (R006XY202WA)***Typical profile**

0 to 5 inches; cobbly silt loam

5 to 11 inches; extremely gravelly silt loam

11 to 15 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils***Percentage of map unit: 8 percent***Rockly soils***Percentage of map unit: 7 percent****Major Use***

Livestock grazing

751—Lorena-Rockly complex, 30 to 65 percent slopes***Map Unit Setting****General landscape: Hills and canyonlands**Major land resource area (MLRA): 8**Elevation: 300 to 3,000 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Lorena and similar soils: 50 percent**Rockly and similar soils: 40 percent**Dissimilar minor components: 10 percent****Characteristics of Lorena*****Setting***Landform: Hillslopes and canyon sides**Aspect (representative): Southwest**Aspect (range): Southeast to west (clockwise)***Properties and qualities***Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash**Slope range: 30 to 65 percent**Depth to restrictive feature: 20 to 40 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Low (about 4.9 inches)*

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 9 inches; silt loam

9 to 25 inches; clay loam

25 to 29 inches; unweathered bedrock

Characteristics of Rockly**Setting**

Landform: Hillslopes and canyonsides

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 30 to 65 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components**Goldendale soils**

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

752—Lorena-Rockly complex, 2 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,500 to 3,000 feet

Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 60 percent
Rockly and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Lorena

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 9 inches; silt loam
 9 to 25 inches; clay loam
 25 to 29 inches; unweathered bedrock

Characteristics of Rockly

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 2 to 15 percent
Depth to restrictive feature: 5 to 12 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Goldendale soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

756—Walla Walla silt loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 200 to 1,600 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Walla Walla and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups*Land capability subclass (nonirrigated): 3e**Land capability subclass (irrigated): 3e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 10 inches; silt loam

10 to 60 inches; silt loam

Dissimilar Minor Components**Endicott soils***Percentage of map unit: 5 percent***Olex soils***Percentage of map unit: 5 percent****Major Uses***

Crop production and livestock grazing

758—Walla Walla silt loam, 30 to 65 percent slopes***Map Unit Setting****General landscape: Hills**Major land resource area (MLRA): 8**Elevation: 200 to 1,600 feet**Mean annual precipitation: 12 to 15 inches**Mean annual air temperature: 48 to 54 degrees F**Frost-free period: 120 to 170 days****Map Unit Composition****Walla Walla and similar soils: 90 percent**Dissimilar minor components: 10 percent****Characteristics of Walla Walla*****Setting***Landform: Hillslopes**Aspect (representative): Southeast**Aspect (range): Northeast to south (clockwise)***Properties and qualities***Parent material: Loess**Slope range: 30 to 65 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 11.4 inches)***Interpretive groups***Land capability subclass (nonirrigated): 7e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)*

Typical profile

0 to 10 inches; silt loam

10 to 60 inches; silt loam

Dissimilar Minor Components**Endicott soils***Percentage of map unit:* 5 percent**Olex soils***Percentage of map unit:* 5 percent***Major Use***

Livestock grazing

761—Balake very gravelly loam, 5 to 10 percent slopes***Map Unit Setting****General landscape:* Uplands*Major land resource area (MLRA):* 6*Elevation:* 200 to 1,000 feet*Mean annual precipitation:* 25 to 35 inches*Mean annual air temperature:* 45 to 48 degrees F*Frost-free period:* 100 to 120 days***Map Unit Composition****Balake and similar soils:* 90 percent*Dissimilar minor components:* 10 percent***Characteristics of Balake*****Setting***Landform:* Terraces*Aspect (representative):* North*Aspect (range):* All aspects**Properties and qualities***Parent material:* Conglomerate mixed with loess*Slope range:* 5 to 10 percent*Depth to restrictive feature:* None within a depth of 60 inches*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* Moderate (about 7.1 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 4e*Plant community class:* Oregon white oak/pinegrass-elk sedge (HOG211)**Typical profile**

0 to 12 inches; very gravelly loam

12 to 60 inches; very gravelly clay loam

Dissimilar Minor Components**Cauley soils***Percentage of map unit: 5 percent***Rock outcrop***Percentage of map unit: 5 percent****Major Use***

Timber production

762—Balake very gravelly loam, 10 to 15 percent slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 6**Elevation: 200 to 1,000 feet**Mean annual precipitation: 25 to 35 inches**Mean annual air temperature: 45 to 48 degrees F**Frost-free period: 100 to 120 days****Map Unit Composition****Balake and similar soils: 90 percent**Dissimilar minor component: 10 percent****Characteristics of Balake*****Setting***Landform: Terraces**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Conglomerate mixed with loess**Slope range: 10 to 15 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 7.1 inches)***Interpretive groups***Land capability subclass (nonirrigated): 4e**Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)***Typical profile**

0 to 12 inches; very gravelly loam

12 to 60 inches; very gravelly clay loam

Dissimilar Minor Component**Cauley soils***Percentage of map unit: 10 percent*

Major Use

Timber production

763—Balake very gravelly loam, 15 to 30 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 200 to 1,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Balake and similar soils: 90 percent

Dissimilar minor component: 10 percent

Characteristics of Balake**Setting**

Landform: Hillslopes

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Conglomerate mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 12 inches; very gravelly loam

12 to 60 inches; very gravelly clay loam

Dissimilar Minor Component**Cauley soils**

Percentage of map unit: 10 percent

Major Use

Timber production

764—Balake very gravelly loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 6
Elevation: 200 to 1,000 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 120 days

Map Unit Composition

Balake and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Balake

Setting

Landform: Terraces
Aspect (representative): Southwest
Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Conglomerate mixed with loess
Slope range: 5 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 12 inches; very gravelly loam
12 to 60 inches; very gravelly clay loam

Dissimilar Minor Components

Gunn soils

Percentage of map unit: 8 percent

Galiente soils

Percentage of map unit: 7 percent

Major Use

Timber production

765—Balake very gravelly loam, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 200 to 1,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Balake and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Balake**Setting**

Landform: Hillslopes

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Conglomerate mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 12 inches; very gravelly loam

12 to 60 inches; very gravelly clay loam

Dissimilar Minor Components**Gunn soils**

Percentage of map unit: 8 percent

Galiente soils

Percentage of map unit: 7 percent

Major Use

Timber production

766—Gunn-Galiente complex, 5 to 30 percent slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 6
Elevation: 500 to 3,200 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 100 to 140 days

Map Unit Composition

Gunn and similar soils: 60 percent
Galiente and similar soils: 35 percent
Dissimilar minor component: 5 percent

Characteristics of Gunn

Setting

Landform: Hillslopes
Aspect (representative): West
Aspect (range): South to northwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 5 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 7 inches; loam
7 to 15 inches; loam
15 to 60 inches; clay loam

Characteristics of Galiente

Setting

Landform: Hillslopes
Aspect (representative): West
Aspect (range): South to northwest (clockwise)

Properties and qualities

Parent material: Loess over old alluvium
Slope range: 5 to 30 percent
Depth to restrictive feature: 10 to 20 inches to abrupt textural change
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)

Typical profile

0 to 11 inches; silt loam

11 to 60 inches; clay

Dissimilar Minor Component

Leidl soils

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

767—Gunn-Galiente complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 500 to 3,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Map Unit Composition

Gunn and similar soils: 60 percent

Galiente and similar soils: 30 percent

Dissimilar minor components: 10 percent

Characteristics of Gunn

Setting

Landform: Hillslopes

Aspect (representative): West

Aspect (range): South to northwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups*Land capability subclass (nonirrigated): 7e**Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)***Typical profile**

0 to 7 inches; loam

7 to 15 inches; loam

15 to 60 inches; clay loam

Characteristics of Galiente**Setting***Landform: Hillslopes**Aspect (representative): West**Aspect (range): South to northwest (clockwise)***Properties and qualities***Parent material: Loess over old alluvium**Slope range: 30 to 65 percent**Depth to restrictive feature: 10 to 20 inches to abrupt textural change**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 9.9 inches)***Interpretive groups***Land capability subclass (nonirrigated): 7e**Plant community class: Oregon white oak/western hazel-common snowberry (HOG311)***Typical profile**

0 to 11 inches; silt loam

11 to 60 inches; clay

Dissimilar Minor Components**Kiakus soils***Percentage of map unit: 5 percent***Leidl soils***Percentage of map unit: 5 percent****Major Use***

Timber production

768—Gunn-Galiente complex, 15 to 30 percent slopes***Map Unit Setting****General landscape: Hills**Major land resource area (MLRA): 6**Elevation: 500 to 3,200 feet**Mean annual precipitation: 18 to 25 inches**Mean annual air temperature: 46 to 48 degrees F**Frost-free period: 100 to 140 days*

Map Unit Composition

Gunn and similar soils: 60 percent

Galiente and similar soils: 35 percent

Dissimilar minor component: 5 percent

Characteristics of Gunn

Setting

Landform: Hillslopes

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 7 inches; loam

7 to 15 inches; loam

15 to 60 inches; clay loam

Characteristics of Galiente

Setting

Landform: Hillslopes

Aspect (representative): Southwest

Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Loess over old alluvium

Slope range: 15 to 30 percent

Depth to restrictive feature: 10 to 20 inches to abrupt textural change

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 11 inches; silt loam

11 to 60 inches; clay

Dissimilar Minor Component**Leidl soils**

Percentage of map unit: 5 percent

Major Uses

Timber production and crop production

769—Aquic Haploxerolls, protected, nearly level***Map Unit Setting***

General landscape: River valleys

Major land resource area (MLRA): 6

Elevation: 100 to 120 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 150 to 180 days

Map Unit Composition

Aquic Haploxerolls and similar soils: 100 percent

Characteristics of Aquic Haploxerolls**Setting**

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and alluvium

Slope range: 0 to 2 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): About 8 to 16 inches (see Water Features table)

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3w

Ecological site: WET MEADOW 15+ PZ (R009XY601WA)

Typical profile

0 to 8 inches; silt loam

8 to 16 inches; silt loam

16 to 42 inches; silt loam

42 to 60 inches; stratified sand to silty clay loam

Major Use

Livestock grazing

775—Horseflat cobbly silt loam, 2 to 15 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 300 to 3,000 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 170 days

Map Unit Composition

Horseflat and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Horseflat**Setting**

Landform: Ridges

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Dissimilar Minor Components**Stacker soils**

Percentage of map unit: 8 percent

Fisherhill soils

Percentage of map unit: 7 percent

Major Use

Livestock grazing

776—Horseflat cobbly silt loam, 15 to 30 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 300 to 3,000 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 170 days

Map Unit Composition

Horseflat and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Horseflat**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Dissimilar Minor Components**Stacker soils**

Percentage of map unit: 8 percent

Fisherhill soils

Percentage of map unit: 7 percent

Major Use

Livestock grazing

777—Horseflat cobbly silt loam, 30 to 65 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 300 to 3,000 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 170 days

Map Unit Composition

Horseflat and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Horseflat**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Dissimilar Minor Components**Stacker soils**

Percentage of map unit: 8 percent

Fisherhill soils

Percentage of map unit: 7 percent

Major Use

Livestock grazing

781—Gunn loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 500 to 2,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 150 days

Map Unit Composition

Gunn and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Gunn

Setting

Landform: Hillslopes

Aspect (representative): Southwest

Aspect (range): Southeast to northwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 7 inches; loam

7 to 15 inches; loam

15 to 60 inches; clay loam

Dissimilar Minor Components

Cauley soils

Percentage of map unit: 8 percent

Haploxerolls

Percentage of map unit: 7 percent

Major Use

Timber production

782—Gunn loam, 5 to 30 percent north slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 500 to 2,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 150 days

Map Unit Composition

Gunn and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Gunn**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 7 inches; loam

7 to 15 inches; loam

15 to 60 inches; clay loam

Dissimilar Minor Components**Cauley soils**

Percentage of map unit: 8 percent

Haploxerolls

Percentage of map unit: 7 percent

Major Uses

Timber production and crop production

783—Gunn loam, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 500 to 2,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 150 days

Map Unit Composition

Gunn and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Gunn

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): Northwest to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/pinegrass-elk sedge (HOG211)

Typical profile

0 to 7 inches; loam

7 to 15 inches; loam

15 to 60 inches; clay loam

Dissimilar Minor Components

Lorena soils

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Use

Timber production

790—Fisherhill silt loam, 2 to 5 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 500 to 1,500 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Fisherhill and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Fisherhill**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and slope alluvium

Slope range: 2 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 9 inches; silt loam

9 to 60 inches; silty clay loam

Dissimilar Minor Components**Stacker soils**

Percentage of map unit: 8 percent

Horseflat soils

Percentage of map unit: 7 percent

Major Uses

Crop production and livestock grazing

791—Fisherhill silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 500 to 1,500 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Fisherhill and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Fisherhill

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and slope alluvium

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 9 inches; silt loam

9 to 60 inches; silty clay loam

Dissimilar Minor Components

Stacker soils

Percentage of map unit: 8 percent

Horseflat soils

Percentage of map unit: 7 percent

Major Uses

Crop production and livestock grazing

792—Fisherhill silt loam, 10 to 15 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 500 to 1,500 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Fisherhill and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Fisherhill

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and slope alluvium

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 9 inches; silt loam

9 to 60 inches; silty clay loam

Dissimilar Minor Components

Stacker soils

Percentage of map unit: 8 percent

Horseflat soils

Percentage of map unit: 7 percent

Major Uses

Crop production and livestock grazing

793—Goldendale silt loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 2,200 to 2,400 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Goldendale

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash
Slope range: 2 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam
14 to 20 inches; silt loam
20 to 60 inches; clay loam

Dissimilar Minor Component

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

796—Lorena silt loam, 2 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,500 to 3,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Lorena**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 9 inches; silt loam

9 to 25 inches; clay loam

25 to 29 inches; unweathered bedrock

Dissimilar Minor Components**Gwin soils**

Percentage of map unit: 5 percent

Horseflat soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

798—Dalig loam, 5 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 100 to 3,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Dalig and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Dalig

Setting

Landform: Hillslopes

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 5 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 5 inches; loam

5 to 60 inches; clay loam

Dissimilar Minor Components

Kaiders soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Tigit soils

Percentage of map unit: 5 percent

Major Use

Timber production

799—Dalig loam, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 6

Elevation: 100 to 3,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Map Unit Composition

Dalig and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Dalig**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/western hazel-common snowberry
(HOG311)

Typical profile

0 to 5 inches; loam

5 to 60 inches; clay loam

Dissimilar Minor Components**Kaiders soils**

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Tigit soils

Percentage of map unit: 5 percent

Major Use

Timber production

890—Stacker silt loam, 2 to 5 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 600 to 1,400 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Stacker

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam

18 to 28 inches; silty clay loam

28 to 32 inches; unweathered bedrock

Dissimilar Minor Components

Fisherhill soils

Percentage of map unit: 5 percent

Horseflat soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

891—Stacker silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 600 to 1,400 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Stacker

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam

18 to 28 inches; silty clay loam

28 to 32 inches; unweathered bedrock

Dissimilar Minor Components

Fisherhill soils

Percentage of map unit: 5 percent

Horseflat soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

893—Fisherhill silt loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 800 to 2,800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Fisherhill and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Fisherhill

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess and alluvium

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 9 inches; silt loam

9 to 60 inches; silty clay loam

Dissimilar Minor Components

Horseflat soils

Percentage of map unit: 5 percent

Stacker soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

894—Fisherhill silt loam, 15 to 30 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 800 to 2,800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Fisherhill and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Fisherhill**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess and slope alluvium

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 9 inches; silt loam

9 to 60 inches; silty clay loam

Dissimilar Minor Components**Horseflat soils**

Percentage of map unit: 5 percent

Stacker soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

895—Fisherhill silt loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 800 to 2,800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 170 days

Map Unit Composition

Fisherhill and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Fisherhill

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess and slope alluvium

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 9 inches; silt loam

9 to 60 inches; silty clay loam

Dissimilar Minor Components

Horseflat soils

Percentage of map unit: 5 percent

Stacker soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

896—Stacker silt loam, 2 to 15 percent slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 600 to 2,900 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Stacker

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam

18 to 28 inches; silty clay loam

28 to 32 inches; unweathered bedrock

Dissimilar Minor Components

Fisherhill soils

Percentage of map unit: 5 percent

Horseflat soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

897—Stacker silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 600 to 2,900 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Stacker

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess over basalt

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam

18 to 28 inches; silty clay loam

28 to 32 inches; unweathered bedrock

Dissimilar Minor Components

Fisherhill soils

Percentage of map unit: 5 percent

Horseflat soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

898—Stacker silt loam, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,000 to 2,200 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Stacker**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): Southeast to southwest (clockwise)

Properties and qualities

Parent material: Loess over basalt

Slope range: 30 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam

18 to 28 inches; silty clay loam

28 to 32 inches; unweathered bedrock

Dissimilar Minor Components**Fisherhill soils**

Percentage of map unit: 5 percent

Horseflat soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

899—Stacker silt loam, 10 to 15 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,000 to 1,200 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Stacker

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 10 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 18 inches; silt loam

18 to 28 inches; silty clay loam

28 to 32 inches; unweathered bedrock

Dissimilar Minor Components

Fisherhill soils

Percentage of map unit: 5 percent

Horseflat soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

930A—Rockly-Lorena complex, 2 to 15 percent north slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,700 to 2,900 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Rockly and similar soils: 60 percent

Lorena and similar soils: 30 percent

Dissimilar minor components: 10 percent

Characteristics of Rockly

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 15 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 6 inches; very gravelly loam

6 to 9 inches; extremely gravelly loam

9 to 13 inches; unweathered bedrock

Characteristics of Lorena

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 12 inches; silt loam

12 to 23 inches; silt loam

23 to 35 inches; silt loam
 35 to 39 inches; unweathered bedrock

Dissimilar Minor Components

Goldendale soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

930B—Rockly-Lorena complex, 15 to 30 percent north slopes

Map Unit Setting

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 1,700 to 2,900 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Rockly and similar soils: 60 percent
Lorena and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Rockly

Setting

Landform: Hillslopes
Aspect (representative): Northwest
Aspect (range): West to north (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 15 to 30 percent
Depth to restrictive feature: 5 to 12 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam
4 to 10 inches; extremely gravelly loam
10 to 14 inches; unweathered bedrock

Characteristics of Lorena**Setting**

Landform: Hillslopes
Aspect (representative): Northwest
Aspect (range): West to north (clockwise)

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 12 inches; silt loam
12 to 23 inches; silt loam
23 to 35 inches; silt loam
35 to 39 inches; unweathered bedrock

Dissimilar Minor Components**Goldendale soils**

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

950—Lorena-Rockly complex, 15 to 30 percent north slopes***Map Unit Setting***

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 1,400 to 2,900 feet
Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 70 percent

Rockly and similar soils: 20 percent

Dissimilar minor components: 10 percent

Characteristics of Lorena

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 9 inches; silt loam

9 to 25 inches; clay loam

25 to 29 inches; unweathered bedrock

Characteristics of Rockly

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups*Land capability subclass (nonirrigated): 7s**Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)***Typical profile**

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components**Goldendale soils***Percentage of map unit: 5 percent***Leidl soils***Percentage of map unit: 5 percent****Major Uses***

Livestock grazing and crop production

951—Lorena-Rockly complex, 30 to 65 percent north slopes***Map Unit Setting****General landscape: Hills and canyonlands**Major land resource area (MLRA): 8**Elevation: 1,400 to 2,900 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Lorena and similar soils: 60 percent**Rockly and similar soils: 30 percent**Dissimilar minor components: 10 percent****Characteristics of Lorena*****Setting***Landform: Hillslopes and canyonsides**Aspect (representative): North**Aspect (range): West to northeast (clockwise)***Properties and qualities***Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash**Slope range: 30 to 65 percent**Depth to restrictive feature: 20 to 40 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Low (about 4.9 inches)*

Interpretive groups*Land capability subclass (nonirrigated): 7e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 9 inches; silt loam

9 to 25 inches; clay loam

25 to 29 inches; unweathered bedrock

Characteristics of Rockly**Setting***Landform: Hillslopes and canyonsides**Aspect (representative): North**Aspect (range): West to northeast (clockwise)***Properties and qualities***Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash**Slope range: 30 to 65 percent**Depth to restrictive feature: 5 to 12 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Very low (about 0.8 inch)***Interpretive groups***Land capability subclass (nonirrigated): 7s**Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)***Typical profile**

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components**Goldendale soils***Percentage of map unit: 5 percent***Leidl soils***Percentage of map unit: 5 percent****Major Use***

Livestock grazing

952—Lorena-Rockly complex, 2 to 15 percent north slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 1,400 to 2,900 feet*

Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 75 percent
Rockly and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Lorena

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 2 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 9 inches; silt loam
9 to 25 inches; clay loam
25 to 29 inches; unweathered bedrock

Characteristics of Rockly

Setting

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 2 to 15 percent
Depth to restrictive feature: 5 to 12 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Goldendale soils

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

969—Goldendale silt loam, basalt substratum, 2 to 5 percent north slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,900 to 2,200 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 2 to 5 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 2e

Land capability subclass (irrigated): 2e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 15 inches; loam

15 to 45 inches; clay loam

45 to 49 inches; unweathered bedrock

Dissimilar Minor Components

Blockhouse soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

969A—Goldendale silt loam, basalt substratum, 5 to 10 percent north slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,600 to 2,800 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 5 to 10 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 15 inches; loam

15 to 45 inches; clay loam

45 to 49 inches; unweathered bedrock

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

969B—Goldendale silt loam, basalt substratum, 10 to 15 percent north slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,600 to 2,800 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 10 to 15 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 15 inches; loam

15 to 45 inches; clay loam

45 to 49 inches; unweathered bedrock

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

969C—Goldendale silt loam, basalt substratum, 15 to 30 percent north slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,600 to 2,800 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): Northwest to north (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 10 inches; silt loam

10 to 15 inches; loam

15 to 45 inches; clay loam

45 to 49 inches; unweathered bedrock

Dissimilar Minor Components

Lorena soils

Percentage of map unit: 10 percent

Major Uses

Crop production and livestock grazing

970—Oreoke-Tronsen complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Canyonlands

Major land resource area (MLRA): 8

Elevation: 800 to 2,600 feet

Mean annual precipitation: 12 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 160 days

Map Unit Composition

Oreoke and similar soils: 50 percent

Tronsen and similar soils: 40 percent

Dissimilar minor components: 10 percent

Characteristics of Oreoke

Setting

Landform: Canyonsides

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 5 inches; stony silt loam

5 to 15 inches; gravelly silt loam

15 to 22 inches; very gravelly silt loam

22 to 60 inches; very gravelly clay loam

Characteristics of Tronsen

Setting

Landform: Canyonsides

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of loess and volcanic ash in the upper part

Slope range: 15 to 30 percent

Depth to restrictive feature: 7 to 11 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 8 inches; stony ashy silt loam

8 to 14 inches; very gravelly clay loam

14 to 60 inches; very cobbly clay loam

Dissimilar Minor Components

Rockly soils

Percentage of map unit: 5 percent

Swalecreek soils

Percentage of map unit: 5 percent

Major Uses

Timber production and livestock grazing

971—Oreoke-Tronsen complex, 30 to 60 percent slopes

Map Unit Setting

General landscape: Canyonlands
Major land resource area (MLRA): 8
Elevation: 800 to 2,600 feet
Mean annual precipitation: 12 to 25 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 160 days

Map Unit Composition

Oreoke and similar soils: 50 percent
Tronsen and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Oreoke

Setting

Landform: Canyonsides
Aspect (representative): Southwest
Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 5 inches; stony silt loam
 5 to 15 inches; gravelly silt loam
 15 to 22 inches; very gravelly silt loam
 22 to 60 inches; very gravelly clay loam

Characteristics of Tronsen

Setting

Landform: Canyonsides
Aspect (representative): Southwest
Aspect (range): Southeast to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of loess and volcanic ash in the upper part
Slope range: 30 to 60 percent
Depth to restrictive feature: 7 to 11 inches to strongly contrasting textural stratification
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 8 inches; stony ashy silt loam

8 to 14 inches; very gravelly clay loam

14 to 60 inches; very cobbly clay loam

Dissimilar Minor Components

Rockly soils

Percentage of map unit: 5 percent

Swalecreek soils

Percentage of map unit: 5 percent

Major Uses

Timber production and livestock grazing

987—Asotin silt loam, 5 to 10 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 800 to 2,200 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 135 to 160 days

Map Unit Composition

Asotin and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Asotin

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 10 inches; silt loam

10 to 32 inches; silt loam

32 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Component

Lickskillet soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

988—Asotin silt loam, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 800 to 2,200 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 135 to 160 days

Map Unit Composition

Asotin and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Asotin

Setting

Landform: Hillslopes

Aspect (representative): Southeast

Aspect (range): East to south (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: DRY LOAMY 9-12 PZ ARIDIC (R008XY101WA)

Typical profile

0 to 10 inches; silt loam

10 to 32 inches; silt loam

32 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components**Bakeoven soils**

Percentage of map unit: 8 percent

Lickskillet soils

Percentage of map unit: 7 percent

Major Uses

Livestock grazing and crop production

989—Asotin silt loam, 10 to 15 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 800 to 2,200 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 135 to 160 days

Map Unit Composition

Asotin and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Asotin**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 10 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups*Land capability subclass (nonirrigated): 3e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 10 inches; silt loam

10 to 32 inches; silt loam

32 to 38 inches; silt loam

38 to 42 inches; unweathered bedrock

Dissimilar Minor Components**Bakeoven soils***Percentage of map unit: 8 percent***Lickskillet soils***Percentage of map unit: 7 percent****Major Uses***

Crop production and livestock grazing

990—Goldendale-Lorena-Rockly complex, 2 to 30 percent north slopes***Map Unit Setting****General landscape: Uplands**Major land resource area (MLRA): 8**Elevation: 800 to 3,100 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 48 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Goldendale and similar soils: 50 percent**Lorena and similar soils: 25 percent**Rockly and similar soils: 15 percent**Dissimilar minor components: 10 percent****Characteristics of Goldendale*****Setting***Landform: Dissected plateaus**Aspect (representative): North**Aspect (range): West to northeast (clockwise)***Properties and qualities***Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash**Slope range: 2 to 30 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline*

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; loam

20 to 60 inches; clay loam

Characteristics of Lorena

Setting

Landform: Dissected plateaus

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 0 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 12 inches; silt loam

12 to 23 inches; silt loam

23 to 35 inches; silt loam

35 to 39 inches; unweathered bedrock

Characteristics of Rockly

Setting

Landform: Dissected plateaus

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 0 to 30 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

991—Goldendale-Lorena-Rockly complex, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Hills and canyonlands

Major land resource area (MLRA): 8

Elevation: 800 to 3,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 35 percent

Lorena and similar soils: 30 percent

Rockly and similar soils: 20 percent

Dissimilar minor components: 15 percent

Characteristics of Goldendale

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Characteristics of Lorena

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium, colluvium, and residuum derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 30 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 12 inches; silt loam

12 to 23 inches; silt loam

23 to 35 inches; silt loam

35 to 39 inches; unweathered bedrock

Characteristics of Rockly

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 30 to 65 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 8 percent

Rock outcrop

Percentage of map unit: 7 percent

Major Use

Livestock grazing

993A—Goldendale silt loam, 5 to 10 percent north slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,700 to 2,300 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 5 to 10 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

993B—Goldendale silt loam, 10 to 15 percent north slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 900 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 10 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

993C—Goldendale silt loam, 15 to 30 percent north slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 900 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

993D—Goldendale silt loam, 30 to 65 percent north slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 900 to 2,700 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Goldendale

Setting

Landform: Hillslopes

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Major Use

Livestock grazing

994—Lorena silt loam, 2 to 5 percent north slopes

Map Unit Setting

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 900 to 1,200 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Lorena

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess
and a minor amount of volcanic ash

Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 3e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 12 inches; silt loam

12 to 23 inches; silt loam

23 to 35 inches; silt loam

35 to 39 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils**

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

994A—Lorena silt loam, 5 to 10 percent north slopes***Map Unit Setting***

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,400 to 3,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Lorena and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Lorena**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

*Parent material: Slope alluvium and colluvium derived from basalt mixed with loess
and a minor amount of volcanic ash*

Slope range: 5 to 10 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups*Land capability subclass (nonirrigated): 3e**Land capability subclass (irrigated): 3e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 12 inches; silt loam

12 to 23 inches; silt loam

23 to 35 inches; silt loam

35 to 39 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils***Percentage of map unit: 5 percent***Rockly soils***Percentage of map unit: 5 percent****Major Uses***

Livestock grazing and crop production

994B—Lorena silt loam, 10 to 15 percent north slopes***Map Unit Setting****General landscape: Hills**Major land resource area (MLRA): 8**Elevation: 1,400 to 3,000 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Lorena and similar soils: 90 percent**Dissimilar minor components: 10 percent****Characteristics of Lorena*****Setting***Landform: Hillslopes**Aspect (representative): North**Aspect (range): All aspects***Properties and qualities***Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash**Slope range: 10 to 15 percent**Depth to restrictive feature: 20 to 40 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 6.6 inches)*

Interpretive groups*Land capability subclass (nonirrigated): 3e**Land capability subclass (irrigated): 4e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 12 inches; silt loam

12 to 23 inches; silt loam

23 to 35 inches; silt loam

35 to 39 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils***Percentage of map unit: 5 percent***Rockly soils***Percentage of map unit: 5 percent****Major Uses***

Crop production and livestock grazing

994C—Lorena silt loam, 15 to 30 percent north slopes***Map Unit Setting****General landscape: Hills**Major land resource area (MLRA): 8**Elevation: 1,400 to 3,000 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Lorena and similar soils: 90 percent**Dissimilar minor components: 10 percent****Characteristics of Lorena*****Setting***Landform: Hillslopes**Aspect (representative): North**Aspect (range): West to northeast (clockwise)***Properties and qualities***Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash**Slope range: 15 to 30 percent**Depth to restrictive feature: 20 to 40 inches to lithic bedrock**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Moderate (about 6.6 inches)*

Interpretive groups*Land capability subclass (nonirrigated): 4e**Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)***Typical profile**

0 to 12 inches; silt loam

12 to 23 inches; silt loam

23 to 35 inches; silt loam

35 to 39 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils***Percentage of map unit: 5 percent***Rockly soils***Percentage of map unit: 5 percent****Major Uses***

Livestock grazing and crop production

995—Hyprairie silt loam, dry, 2 to 30 percent slopes***Map Unit Setting****General landscape: Hills**Major land resource area (MLRA): 8**Elevation: 1,900 to 2,800 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days****Map Unit Composition****Hyprairie and similar soils: 90 percent**Dissimilar minor components: 10 percent****Characteristics of Hyprairie*****Setting***Landform: Hillslopes**Aspect (representative): Northeast**Aspect (range): Northwest to east (clockwise)***Properties and qualities***Parent material: Loess over old alluvium**Slope range: 2 to 30 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 11.5 inches)***Interpretive groups***Land capability subclass (nonirrigated): 4e*

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 7 inches; silt loam

7 to 25 inches; silt loam

25 to 48 inches; silt loam

48 to 60 inches; gravelly clay loam

Dissimilar Minor Components**Leidl soils**

Percentage of map unit: 4 percent

Lorena soils

Percentage of map unit: 3 percent

Rockly soils

Percentage of map unit: 3 percent

Major Uses

Timber production and crop production

996—Hyprairie silt loam, dry, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,900 to 2,800 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Hyprairie and similar soils: 85 percent

Dissimilar minor components: 15 percent

Characteristics of Hyprairie**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Loess over old alluvium

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 7 inches; silt loam

7 to 25 inches; silt loam

25 to 48 inches; silt loam

48 to 60 inches; gravelly clay loam

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 5 percent

Leidl soils

Percentage of map unit: 4 percent

Lorena soils

Percentage of map unit: 3 percent

Rockly soils

Percentage of map unit: 3 percent

Major Use

Timber production

1000—Tekison silt loam, 30 to 60 percent slopes

Map Unit Setting

General landscape: Mountains

Major land resource area (MLRA): 8

Elevation: 1,100 to 2,600 feet

Mean annual precipitation: 16 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Tekison and similar soils: 95 percent

Dissimilar minor component: 5 percent

Characteristics of Tekison

Setting

Landform: Mountain slopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 60 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 11 inches; silt loam

11 to 20 inches; gravelly clay loam

20 to 45 inches; very cobbly clay

45 to 60 inches; very cobbly clay loam

Dissimilar Minor Component

Rock Creek soils

Percentage of map unit: 5 percent

Major Use

Timber production

1010—Colockum-Cheviot complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 300 to 2,500 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 165 days

Map Unit Composition

Colockum and similar soils: 60 percent

Cheviot and similar soils: 40 percent

Characteristics of Colockum

Setting

Landform: Hillslopes

Aspect (representative): Southeast

Aspect (range): Northeast to south (clockwise)

Properties and qualities

Parent material: Loess over mixed slope alluvium and colluvium derived from basalt

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups*Land capability subclass (nonirrigated): 4e**Land capability subclass (irrigated): 6e**Ecological site: LOAMY 9-15 PZ (R008XY102WA)***Typical profile**

0 to 20 inches; silt loam

20 to 34 inches; silt loam

34 to 46 inches; silty clay loam

46 to 60 inches; gravelly silty clay loam

Characteristics of Cheviot**Setting***Landform: Hillslopes**Aspect (representative): Southeast**Aspect (range): Northeast to south (clockwise)***Properties and qualities***Parent material: Colluvium derived from basalt mixed with loess**Slope range: 15 to 30 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline (about 1 millimho per centimeter)**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): Low (about 5.9 inches)***Interpretive groups***Land capability subclass (nonirrigated): 7s**Ecological site: STONY 9-15 PZ (R008XY202WA)***Typical profile**

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Major Use

Livestock grazing

1011—Colockum-Cheviot complex, 30 to 60 percent slopes**Map Unit Setting***General landscape: Hills and canyonlands**Major land resource area (MLRA): 8**Elevation: 300 to 2,500 feet**Mean annual precipitation: 12 to 16 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 110 to 165 days***Map Unit Composition***Colockum and similar soils: 60 percent**Cheviot and similar soils: 40 percent*

Characteristics of Colockum

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): Southeast

Aspect (range): Northeast to southwest (clockwise)

Properties and qualities

Parent material: Loess over mixed slope alluvium and colluvium derived from basalt

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 20 inches; silt loam

20 to 34 inches; silt loam

34 to 46 inches; silty clay loam

46 to 60 inches; gravelly silty clay loam

Characteristics of Cheviot

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): Southeast

Aspect (range): Northeast to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Major Use

Livestock grazing

1012—Goldendale-Tekison complex, 2 to 15 percent slopes**Map Unit Setting**

General landscape: Uplands

Major land resource area (MLRA): 8

Elevation: 1,100 to 2,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 45 percent

Tekison and similar soils: 40 percent

Dissimilar minor components: 15 percent

Characteristics of Goldendale**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 0 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Characteristics of Tekison**Setting**

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 0 to 15 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 8 inches; stony loam

8 to 18 inches; gravelly clay loam

18 to 44 inches; very cobbly clay

44 to 60 inches; very cobbly clay loam

Dissimilar Minor Components**Leidl soils**

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Uses

Timber production, livestock grazing, and crop production

1013—Goldendale-Tekison complex, 15 to 30 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,100 to 2,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 45 percent

Tekison and similar soils: 40 percent

Dissimilar minor components: 15 percent

Characteristics of Goldendale

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Characteristics of Tekison

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 8 inches; stony loam

8 to 18 inches; gravelly clay loam

18 to 44 inches; very cobbly clay
44 to 60 inches; very cobbly clay loam

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Uses

Timber production, livestock grazing, and crop production

1014—Tekison-Goldendale complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills and canyonlands
Major land resource area (MLRA): 8
Elevation: 1,100 to 2,600 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Tekison and similar soils: 55 percent
Goldendale and similar soils: 45 percent

Characteristics of Tekison

Setting

Landform: Hillslopes and canyonsides
Aspect (representative): Northeast
Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 30 to 65 percent
Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 8 inches; stony loam
 8 to 18 inches; gravelly clay loam
 18 to 44 inches; very cobbly clay
 44 to 60 inches; very cobbly clay loam

Characteristics of Goldendale**Setting**

Landform: Hillslopes and canyonsides
Aspect (representative): Northeast
Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam
 14 to 20 inches; silt loam
 20 to 60 inches; clay loam

Major Uses

Livestock grazing and timber production

1015—Rockly-Tekison-Rock outcrop complex, 5 to 30 percent slopes**Map Unit Setting**

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 800 to 2,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Rockly and similar soils: 50 percent
Tekison and similar soils: 30 percent
Rock outcrop: 20 percent

Characteristics of Rockly

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 5 to 30 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Characteristics of Tekison

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 5 to 30 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 8 inches; stony loam

8 to 18 inches; gravelly clay loam

18 to 44 inches; very cobbly clay
 44 to 60 inches; very cobbly clay loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock
Slope range: 0 to 90 percent
Land capability subclass: 8s

Major Uses

Timber production and livestock grazing

1016—Goldendale-Rockly complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills and canyonlands
Major land resource area (MLRA): 8
Elevation: 1,000 to 2,600 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Goldendale and similar soils: 45 percent
Rockly and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Goldendale

Setting

Landform: Hillslopes and canyon sides
Aspect (representative): Northeast
Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam
 14 to 20 inches; silt loam
 20 to 60 inches; clay loam

Characteristics of Rockly

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 30 to 65 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

Leidl soils

Percentage of map unit: 5 percent

Lorena soils

Percentage of map unit: 5 percent

Rock outcrop

Percentage of map unit: 5 percent

Major Use

Livestock grazing

1017—Tronsen-Goldendale-Horseflat complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 800 to 2,200 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Map Unit Composition

Tronsen and similar soils: 50 percent
Goldendale and similar soils: 30 percent
Horseflat and similar soils: 20 percent

Characteristics of Tronsen

Setting

Landform: Hillslopes
Aspect (representative): North
Aspect (range): Northwest to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of loess and volcanic ash in the upper part
Slope range: 15 to 30 percent
Depth to restrictive feature: 7 to 11 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 8 inches; stony ashy silt loam
 8 to 14 inches; very gravelly clay loam
 14 to 60 inches; very cobbly clay loam

Characteristics of Goldendale

Setting

Landform: Hillslopes
Aspect (representative): North
Aspect (range): Northwest to northeast (clockwise)

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt with a minor amount of volcanic ash
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Characteristics of Horseflat**Setting**

Landform: Hillslopes

Aspect (representative): North

Aspect (range): Northwest to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Major Uses

Crop production and livestock grazing

1018—Tronsen-Goodnoe-Horseflat complex, 30 to 65 percent slopes***Map Unit Setting***

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 800 to 2,600 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Map Unit Composition

Tronsen and similar soils: 50 percent
Goodnoe and similar soils: 30 percent
Horseflat and similar soils: 20 percent

Characteristics of Tronsen

Setting

Landform: Hillslopes
Aspect (representative): North
Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of loess and volcanic ash in the upper part
Slope range: 30 to 65 percent
Depth to restrictive feature: 7 to 11 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 8 inches; stony ashy silt loam
 8 to 14 inches; very gravelly clay loam
 14 to 60 inches; very cobbly clay loam

Characteristics of Goodnoe

Setting

Landform: Hillslopes
Aspect (representative): North
Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 6 inches; very stony sandy loam
 6 to 12 inches; very gravelly loam
 12 to 22 inches; very cobbly loam
 22 to 29 inches; extremely stony loam
 29 to 33 inches; unweathered bedrock

Characteristics of Horseflat**Setting**

Landform: Hillslopes
Aspect (representative): North
Aspect (range): West to northeast (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 30 to 65 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam
 4 to 12 inches; very cobbly loam
 12 to 15 inches; very cobbly loam
 15 to 19 inches; unweathered bedrock

Major Use

Livestock grazing

1030—Stacker-Swalecreek-Horseflat complex, 2 to 15 percent slopes***Map Unit Setting***

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 400 to 2,000 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 50 percent
Swalecreek and similar soils: 30 percent
Horseflat and similar soils: 20 percent

Characteristics of Stacker

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 16 inches; silt loam

16 to 36 inches; silt loam

36 to 40 inches; unweathered bedrock

Characteristics of Swalecreek

Setting

Landform: Terraces

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e

Land capability subclass (irrigated): 4e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 9 inches; silt loam

9 to 26 inches; silt loam

26 to 60 inches; silty clay loam

Characteristics of Horseflat

Setting

Landform: Plateaus

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 15 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Major Uses

Crop production and livestock grazing

1031—Stacker-Swalecreek-Horseflat complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 400 to 2,000 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Map Unit Composition

Stacker and similar soils: 50 percent

Swalecreek and similar soils: 30 percent

Horseflat and similar soils: 20 percent

Characteristics of Stacker

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities*Parent material:* Loess over basalt*Slope range:* 15 to 30 percent*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* Moderate (about 7 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 4e*Ecological site:* LOAMY 9-15 PZ (R008XY102WA)**Typical profile**

0 to 16 inches; silt loam

16 to 36 inches; silt loam

36 to 40 inches; unweathered bedrock

Characteristics of Swalecreek**Setting***Landform:* Escarpments of drainageways*Aspect (representative):* North*Aspect (range):* All aspects**Properties and qualities***Parent material:* Alluvium derived from basalt mixed with loess*Slope range:* 15 to 30 percent*Depth to restrictive feature:* None within a depth of 60 inches*Drainage class:* Well drained*Capacity of the most limiting soil layer to transmit water (Ksat):* Moderately high*Flooding frequency:* None*Ponding frequency:* None*Seasonal high water table (minimum depth):* More than 72 inches*Salinity (maximum):* Nonsaline*Sodicity (maximum):* Nonsodic*Available water capacity (entire profile):* High (about 12 inches)**Interpretive groups***Land capability subclass (nonirrigated):* 4e*Ecological site:* COOL LOAMY 9-15 PZ (R008XY103WA)**Typical profile**

0 to 9 inches; silt loam

9 to 26 inches; silt loam

26 to 60 inches; silty clay loam

Characteristics of Horseflat**Setting***Landform:* Hillslopes*Aspect (representative):* North*Aspect (range):* All aspects

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Major Uses

Livestock grazing and crop production

1032—Goodnoe-Swalecreek-Horseflat complex, 30 to 65 percent slopes**Map Unit Setting**

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 300 to 2,800 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Map Unit Composition

Goodnoe and similar soils: 35 percent

Swalecreek and similar soils: 25 percent

Horseflat and similar soils: 25 percent

Dissimilar minor components: 15 percent

Characteristics of Goodnoe**Setting**

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 6 inches; very stony sandy loam

6 to 12 inches; very gravelly loam

12 to 22 inches; very cobbly loam

22 to 29 inches; extremely stony loam

29 to 33 inches; unweathered bedrock

Characteristics of Swalecreek

Setting

Landform: Escarpments of drainageways

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 12 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 9 inches; silt loam

9 to 26 inches; silt loam

26 to 60 inches; silty clay loam

Characteristics of Horseflat

Setting

Landform: Hillslopes

Aspect (representative): South

Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile

0 to 4 inches; cobbly silt loam

4 to 12 inches; very cobbly loam

12 to 15 inches; very cobbly loam

15 to 19 inches; unweathered bedrock

Dissimilar Minor Components

Rock outcrop

Percentage of map unit: 8 percent

Stacker soils

Percentage of map unit: 7 percent

Major Use

Livestock grazing

1042—Cheviot-Tronsen complex, 15 to 30 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 1,600 to 2,400 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 140 to 165 days

Map Unit Composition

Cheviot and similar soils: 60 percent

Tronsen and similar soils: 40 percent

Characteristics of Cheviot

Setting

Landform: Hillslopes

Aspect (representative): Southwest

Aspect (range): South to west (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 30 percent

Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile

0 to 7 inches; very stony silt loam

7 to 40 inches; very gravelly silt loam

40 to 60 inches; extremely cobbly silt loam

Characteristics of Tronsen

Setting

Landform: Hillslopes

Aspect (representative): Southwest

Aspect (range): South to west (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt with an influence of loess and volcanic ash in the upper part

Slope range: 15 to 30 percent

Depth to restrictive feature: 7 to 11 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e

Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile

0 to 8 inches; stony ashy silt loam

8 to 14 inches; very gravelly clay loam

14 to 60 inches; very cobbly clay loam

Major Use

Livestock grazing

1075—Walla Walla-Goodnoe complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 500 to 2,300 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 165 days

Map Unit Composition

Walla Walla and similar soils: 55 percent
Goodnoe and similar soils: 45 percent

Characteristics of Walla Walla

Setting

Landform: Hillslopes
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Loess
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 11 inches; silt loam
11 to 50 inches; silt loam
50 to 60 inches; silt loam

Characteristics of Goodnoe

Setting

Landform: Hillslopes
Aspect (representative): South
Aspect (range): East to southwest (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Very low (about 2.8 inches)

Interpretive groups*Land capability subclass (nonirrigated): 7e**Ecological site: DRY STONY 9-12 PZ ARIDIC (R008XY201WA)***Typical profile**

0 to 6 inches; very stony sandy loam

6 to 12 inches; very gravelly loam

12 to 22 inches; very cobbly loam

22 to 29 inches; extremely stony loam

29 to 33 inches; unweathered bedrock

Major Use

Livestock grazing

1093—Goldendale-Lorena complex, 15 to 30 percent slopes**Map Unit Setting***General landscape: Hills**Major land resource area (MLRA): 8**Elevation: 1,000 to 2,500 feet**Mean annual precipitation: 15 to 18 inches**Mean annual air temperature: 46 to 50 degrees F**Frost-free period: 120 to 150 days***Map Unit Composition***Goldendale and similar soils: 45 percent**Lorena and similar soils: 35 percent**Dissimilar minor components: 20 percent***Characteristics of Goldendale****Setting***Landform: Hillslopes**Aspect (representative): North**Aspect (range): Northwest to northeast (clockwise)***Properties and qualities***Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt with a minor amount of volcanic ash**Slope range: 15 to 30 percent**Depth to restrictive feature: None within a depth of 60 inches**Drainage class: Well drained**Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high**Flooding frequency: None**Ponding frequency: None**Seasonal high water table (minimum depth): More than 72 inches**Salinity (maximum): Nonsaline**Sodicity (maximum): Nonsodic**Available water capacity (entire profile): High (about 11.7 inches)***Interpretive groups***Land capability subclass (nonirrigated): 4e**Ecological site: LOAMY 15+ PZ (R006XY102WA)*

Typical profile

0 to 14 inches; silt loam
14 to 20 inches; silt loam
20 to 60 inches; clay loam

Characteristics of Lorena**Setting**

Landform: Hillslopes
Aspect (representative): North
Aspect (range): Northwest to northeast (clockwise)

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 16 inches; silt loam
16 to 31 inches; silt loam
31 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Dissimilar Minor Components**Leidl soils**

Percentage of map unit: 10 percent

Rock outcrop

Percentage of map unit: 5 percent

Rockly soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

1096—Oreoke-Goldendale-Rock outcrop complex, 25 to 50 percent slopes***Map Unit Setting***

General landscape: Hills and canyonlands
Major land resource area (MLRA): 8

Elevation: 700 to 2,300 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 150 days

Map Unit Composition

Oreoke and similar soils: 50 percent
Goldendale and similar soils: 30 percent
Rock outcrop: 20 percent

Characteristics of Oreoke

Setting

Landform: Hillslopes and canyonsides
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess
Slope range: 25 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e
Plant community class: Oregon white oak/bluebunch wheatgrass (HOG111)

Typical profile

0 to 5 inches; stony silt loam
5 to 15 inches; gravelly silt loam
15 to 22 inches; very gravelly silt loam
22 to 60 inches; very gravelly clay loam

Characteristics of Goldendale

Setting

Landform: Hillslopes and canyonsides
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt with a minor amount of volcanic ash
Slope range: 25 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile

0 to 14 inches; silt loam

14 to 20 inches; silt loam

20 to 60 inches; clay loam

Characteristics of Rock Outcrop

Description of areas: Exposures of various types of bare bedrock

Slope range: 0 to 90 percent

Land capability subclass: 8s

Major Uses

Timber production and livestock grazing

1097—Tekison-Lorena-Rockly complex, 30 to 65 percent slopes

Map Unit Setting

General landscape: Hills and canyonlands

Major land resource area (MLRA): 8

Elevation: 800 to 2,500 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Map Unit Composition

Tekison and similar soils: 50 percent

Lorena and similar soils: 30 percent

Rockly and similar soils: 20 percent

Characteristics of Tekison

Setting

Landform: Hillslopes and canyonsides

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Depth to restrictive feature: 10 to 20 inches to strongly contrasting textural stratification

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Plant community class: Ponderosa pine/bitterbrush/bluebunch wheatgrass (CPS241)

Typical profile

0 to 8 inches; stony loam

8 to 18 inches; gravelly clay loam

18 to 44 inches; very cobbly clay

44 to 60 inches; very cobbly clay loam

Characteristics of Lorena**Setting**

Landform: Hillslopes and canyonsides

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 30 to 65 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 6.5 inches)

Interpretive groups

Land capability subclass (nonirrigated): 7e

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 16 inches; silt loam

16 to 31 inches; silt loam

31 to 36 inches; silt loam

36 to 40 inches; unweathered bedrock

Characteristics of Rockly**Setting**

Landform: Hillslopes and canyonsides

Aspect (representative): Northeast

Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 30 to 65 percent

Depth to restrictive feature: 5 to 12 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups

Land capability subclass (nonirrigated): 7s

Ecological site: VERY SHALLOW 15+ PZ (R006XY301WA)

Typical profile

0 to 4 inches; very gravelly loam

4 to 10 inches; extremely gravelly loam

10 to 14 inches; unweathered bedrock

Major Uses

Livestock grazing and timber production

2961—Renslow silt loam, 0 to 5 percent slopes

Map Unit Setting

General landscape: Hills

Major land resource area (MLRA): 8

Elevation: 900 to 2,800 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Map Unit Composition

Renslow and similar soils: 90 percent

Dissimilar minor components: 10 percent

Characteristics of Renslow

Setting

Landform: Hillslopes

Aspect (representative): North

Aspect (range): All aspects

Properties and qualities

Parent material: Loess

Slope range: 0 to 5 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None

Ponding frequency: None

Seasonal high water table (minimum depth): More than 72 inches

Salinity (maximum): Nonsaline (about 1 millimho per centimeter)

Sodicity (maximum): Nonsodic

Available water capacity (entire profile): Moderate (about 8.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3c

Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 13 inches; silt loam
 13 to 20 inches; silt loam
 20 to 45 inches; silt loam
 45 to 49 inches; unweathered bedrock

Dissimilar Minor Components**Bickleton soils**

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Major Uses

Livestock grazing and crop production

2971—Renslow silt loam, 5 to 15 percent slopes***Map Unit Setting***

General landscape: Hills
Major land resource area (MLRA): 8
Elevation: 900 to 2,800 feet
Mean annual precipitation: 9 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 170 days

Map Unit Composition

Renslow and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Renslow**Setting**

Landform: Hillslopes
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess over basalt
Slope range: 5 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 8.9 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile

0 to 13 inches; silt loam
13 to 20 inches; silt loam
20 to 45 inches; silt loam
45 to 49 inches; unweathered bedrock

Dissimilar Minor Components**Bickleton soils**

Percentage of map unit: 5 percent

Mikkalo soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

3061—Ritzville silt loam, basalt substratum, 2 to 5 percent slopes***Map Unit Setting***

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 900 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 160 days

Map Unit Composition

Ritzville and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Ritzville**Setting**

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 2 to 5 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 13 inches; silt loam
 13 to 40 inches; silt loam
 40 to 53 inches; silt loam
 53 to 57 inches; unweathered bedrock

Dissimilar Minor Component**Mikkalo soils**

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

3071—Ritzville silt loam, basalt substratum, 5 to 15 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 900 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 160 days

Map Unit Composition

Ritzville and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Ritzville**Setting**

Landform: Plateaus
Aspect (representative): North
Aspect (range): All aspects

Properties and qualities

Parent material: Loess
Slope range: 5 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups

Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 13 inches; silt loam
 13 to 40 inches; silt loam

40 to 53 inches; silt loam
53 to 57 inches; unweathered bedrock

Dissimilar Minor Component

Mikkalo soils

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

3081—Ritzville silt loam, basalt substratum, 15 to 30 percent slopes

Map Unit Setting

General landscape: Uplands
Major land resource area (MLRA): 8
Elevation: 900 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 160 days

Map Unit Composition

Ritzville and similar soils: 95 percent
Dissimilar minor component: 5 percent

Characteristics of Ritzville

Setting

Landform: Dissected plateaus
Aspect (representative): Northeast
Aspect (range): Northwest to east (clockwise)

Properties and qualities

Parent material: Loess
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table (minimum depth): More than 72 inches
Salinity (maximum): Nonsaline (about 1 millimho per centimeter)
Sodicity (maximum): Nonsodic
Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups

Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile

0 to 13 inches; silt loam
13 to 40 inches; silt loam
40 to 53 inches; silt loam
53 to 57 inches; unweathered bedrock

Dissimilar Minor Component**Mikkalo soils**

Percentage of map unit: 5 percent

Major Uses

Crop production and livestock grazing

D—Dam

Description of areas: Concrete barriers constructed across waterways to control the flow or raise the level of water

Land capability class: 8

W—Water

Description of areas: Streams, rivers, lakes, and reservoirs; areas are covered with water in most years

Boundary: Depending on time of year and amount of spring runoff, map unit boundary between water and adjacent soils can fluctuate

Land capability class: 8

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Soil Survey Information on the Internet

Soil survey reports have traditionally contained tables providing the properties of the soils and interpretations regarding the use of the soils. Some of the tables for this survey are only available online from the Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov/app/>. The information is provided online instead of in this publication so that the information can be more readily updated. The information on the Web Soil Survey is the official soil survey information.

The information listed below is currently available online for each soil map unit component. This list will expand with time as additional reports and interpretations are developed.

Soil Properties and Qualities

Chemical properties: Content of calcium carbonate, cation-exchange capacity, electrical conductivity (EC), and pH

Soil erosion factors: K-factor (whole soil and rock free), T-factor, wind erodibility group, and wind erodibility index

Physical properties: Available water capacity; bulk density; linear extensibility; content

of organic matter, clay, sand, and silt; saturated hydraulic conductivity; surface texture; water content; liquid limit; and plasticity index

Soil qualities and features: Depth to restrictive layer, drainage class, frost action, and hydrologic soil group

Water features: Depth to water table and frequency of flooding and ponding

Suitabilities and Limitations for Use

Building site development: Risk of corrosion of steel and concrete and suitability for shallow excavations, dwellings, and other uses

Construction materials: Potential as a source of gravel, sand, roadfill, topsoil, and other material

Disaster recovery planning: Suitability for disposal of animal carcasses in case of catastrophic mortality, suitability as a location for a composting facility, and other ratings

Land classification: Ecological site name and ID (number), farmland classification (prime, unique, and statewide importance), hydric rating by map unit, and irrigated and nonirrigated capability class and subclass

Land management: Forestry interpretations, including seedling mortality, suitability for hand planting, suitability for log landings, potential for damage by fire, harvest equipment operability, construction limitations for haul roads and landings, and other ratings

Military operations: Vehicle trafficability, suitability for evacuations, and other ratings

Recreational development: Suitability for camp areas, off-road motorcycle trails, paths and trails, picnic areas, and playgrounds

Sanitary facilities: Suitability for septic tank absorption fields, sanitary landfills, sewage lagoons, and daily cover for landfill

Vegetative productivity: Forest productivity, crop productivity index, range production, and yields of irrigated and nonirrigated crops by map unit or component

Waste management: Disposal of wastewater, treatment of wastewater, and land application of sewage sludge

Soil Reports

Building site development: Dwellings and small commercial buildings; and roads and streets, shallow excavations, and lawns and landscaping

Construction materials: Source of reclamation material and roadfill

Land classifications: Land capability classification, prime and other important farmlands, and taxonomic classification of the soils

Land management: Damage by fire and seedling mortality on forestland; forestland planting and harvesting; forestland site preparation; haul roads, log landings, and soil rutting on forestland; and hazard of erosion and suitability for roads on forestland

Recreational development: Camp areas, picnic areas, and playgrounds; and paths, trails, and golf fairways

Sanitary facilities: Landfills and sewage disposal

Soil chemical properties: Cation-exchange capacity and soil reaction

Soil erosion: RUSLE2 related attributes

Soil physical properties: Engineering properties and physical soil properties

Soil qualities and features: Restrictive layer, potential for frost action, and risk of corrosion

Vegetative productivity: Forestland productivity and rangeland productivity

Waste management: Agricultural disposal of manure, food-processing waste, and

sewage sludge; agricultural disposal of wastewater by overland flow; agricultural disposal of wastewater by rapid infiltration and slow rate treatment; and large animal carcass disposal

Water features: Hydrologic group, water table, ponding, and flooding

Water management: Pond reservoir areas; embankments, dikes, and levees; aquifer-fed excavated ponds

Crops and Pasture

By Tom Gohlke, district conservationist, Natural Resources Conservation Service.

Approximately 32,000 acres of the survey area is irrigated cropland and 210,000 acres is nonirrigated cropland.

The irrigated cropland is primarily in three areas—the western part of the survey area, along the White Salmon River and in the Trout Lake and Glenwood Valleys; the central part of the survey area, primarily near Goldendale; and the eastern part of the survey, near and adjacent to the Benton County line.

Irrigation systems used are the surface, drip, and sprinkler methods. In the western part of the survey area, surface and sprinkler systems are dominant. In the central and eastern parts, sprinkler and drip systems are used. Soils in the western part are moderately well drained to poorly drained. Water application must be managed carefully to prevent the buildup of a high water table. The soils include the Fanal, Flotag, and Grayland series. Crops commonly grown in this area are hay and pasture, corn for silage, and seed potatoes. Many of the well drained soils along the White Salmon River have steep slopes that require careful water management to prevent soil erosion. Orchard crops and hay and pasture plants are grown on the Chemawa, Hood, McGowan, and Underwood soils.

The Goldendale, Swalecreek, and Blockhouse series are the major irrigated soils in the central part of the survey area. These soils have a slow water infiltration rate. Irrigation water must be applied slowly to minimize runoff and soil erosion. A periodic high water table is also a limitation of the Blockhouse series. Crops commonly grown in this area are small grain, grass-legume hay, and pasture.

In the eastern part of the survey area, the Warden, Mikkalo and Quincy series are the major irrigated soils. The risk of water and wind erosion is significant in this area. The risk of water erosion is highest on the Mikkalo and Warden silt loams. The surface of these soils has a tendency to puddle after one or two initial applications of irrigation water. Puddling on the surface decreases the water infiltration rate and increases the risk of runoff and erosion. The Mikkalo soils are only 20 to 40 inches thick to bedrock; thus, they do not hold as much water as the deeper Warden soils. Erosion can be minimized by applying water in small droplets at a rate that is compatible with the intake rate of the soil. Incorporating high residue crops into the rotation and maintaining crop residue on the surface of the soil help to minimize erosion and increase the water infiltration rate.

Wind erosion is a hazard on the Quincy soils. Use of winter cover crops, surface crop residue from high residue crops in the rotation, and continuous cover help to control wind erosion. Because of the low available water capacity of the soils, frequent, light applications of water are needed.

Nonirrigated crops in the survey area are primarily small grain, grass-legume hay, and pasture. The hazard of water erosion is the main limitation for the production of nonirrigated crops. Water erosion can be minimized by use of suitable crop rotations, stubble mulching, seeding early in fall, proper fertilization, and field stripcropping. Other methods include terrace systems, grassed waterways, and critical area seedings. Suitable crop rotations include small grain-summer fallow, small grain-

summer fallow in rotation with grass-legume hay, fall grain-spring barley-summer fallow, and annual spring barley.

A rotation of winter wheat-summer fallow is most commonly used for growing small grain. A rotation better suited to erosion control on soils such as the Goldendale, Lorena, and Bickleton series is fall grain-spring barley-summer fallow. This rotation helps to control weeds and with adequate moisture is more productive other than small grain-summer fallow rotations. Recropping fall grain in higher rainfall zones (16 inches or more) is another common practice. Use of small grain-summer fallow in rotation with grass-legume hay is also suited to the Goldendale and Lorena soils. Fall grain-spring barley-summer fallow and annual spring barley are suitable rotations for erosion control on soils such as the Van Nostern, Morrow, and Mikkalo series.

Pasture and hay seedings are best suited early in spring. In the western part of the survey area, seedings are best suited in April through May; in the central part, late in March to early in May; and in the eastern part, late in February to early in April. Nonirrigated alfalfa generally is kept in production for 7 to 12 years and irrigated alfalfa for 5 to 8 years.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are given in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in [table 2](#).

Prime and Statewide Important Farmland

[Table 3](#) lists the map units in the survey area that are considered prime farmland and farmland of statewide importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmland, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

For some soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each map unit is shown in [table 1](#).

The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

About 183,000 acres of the survey area, or about 18 percent of the total acreage, meets the requirements for prime farmland. Scattered areas are throughout the survey area, but most areas are in the southern and eastern parts.

In some areas, land that does not meet the criteria for prime farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. In Washington, the criteria were developed and approved in cooperation with the Washington State Conservation Commission. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable.

About 475,000 acres of the survey area, or about 47 percent of the total acreage, meets the requirements for farmland of statewide importance.

Rangeland and Grazeable Woodland

By David R. Guenther, range conservationist, Natural Resources Conservation Service.

In this survey area, open native grassland used for grazing by livestock and wildlife is mainly on river breaks and in mountainous areas, including areas east of the Klickitat River, from south of the Simcoe Mountains to the Columbia River, and east of Bingen, Washington, along the Columbia River.

Rangeland in the best ecological condition commonly is interspersed with areas used for small grain. Because a cropping system of winter wheat-summer fallow is used in the survey area, the areas of rangeland are rested from grazing during alternate growing seasons (fig. 10).

Generally, the range plants in the survey area are suited to grazing in fall and winter and early in spring. Grazing should be deferred from year to year. The plants are not suited to continuous grazing early in the growing season.

Use of suitable grazing methods, a high level of management, and range improvements is beneficial to the areas of rangeland (fig. 11).

Very shallow areas of rangeland generally are in good or excellent condition because the short period of plant growth generally does not correspond with the period of livestock grazing. Areas that are overused and in poor condition generally are those where the period of livestock grazing overlaps with the critical period of use by wildlife in spring.

To maintain the condition of the rangeland, livestock should be moved to irrigated pastures or to areas of grazeable woodland in summer. Range plants can be grazed intensively for a brief period, and then they should be allowed to recover for the remainder of the growing season.

Overgrazing of riparian areas has resulted in the total degradation of some areas. The elimination of ground cover increases the risk of soil erosion and can result in the formation of deep gullies.

In areas that have similar climate and topography, differences in the kind and amount of rangeland or forest understory vegetation are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Range management requires a knowledge of the kinds of soil and of the historic climax plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the



Figure 10.—Rangeland that was converted from cropland and is in excellent condition.



Figure 11.—Proper range management helps to prevent overuse and degradation of the range. Ritzville silt loam, basalt substratum, 2 to 5 percent slopes, is in foreground, and Ritzville silt loam, basalt substratum, 15 to 30 percent slopes, is in background.

present plant community with the historic climax plant community on a particular rangeland ecological site. The more closely the existing community resembles the historic community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the historic climax plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the "National Range and Pasture Handbook" (<http://www.glti.nrcs.usda.gov/technical/publications/nrph.html>).

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the historic climax plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

The areas of rangeland produce a majority of the forage in the survey area. These areas may occur as separate detailed soil map units or as complexes with timbered areas, depending on their size.

The 478,000 acres of woodland in the survey area is grazeable by livestock. Most of this land is grazed by cattle or has been grazed by sheep and cattle. Generally, the primary use of the woodland is the production of wood fiber and the secondary use is grazing. The forest understory produces forage for wildlife and livestock. Unlike rangeland, which supports dominantly grasslike plants, the woodland understory consists dominantly of shrubby plants, broadleaf succulent plants, and young trees. Grasslike plants in the areas of woodland also provide a significant amount of forage for livestock, although they are less abundant than the shrubby and broadleaf species.

Forestry activities have a greater impact on the production and composition of woodland understory than do grazing activities. During the early period of settlement, grass production was high, shrubs were sparse, and fast-moving ground fires were common. Heavily barked trees were relatively undamaged by these fires. As practices were implemented to control fires, brush replaced much of the grass and shade-tolerant trees gained a foothold. As the canopy closed, forage for livestock decreased dramatically. The number of livestock commonly was not adjusted to the decrease in forage, and overgrazing resulted.

Silvicultural practices, such as harvesting of shelterwood and thinning for commercial production, increase forage production by opening up the canopy. Using managed burns to dispose of slash and controlling plant competition also increase timber and forage production.

Most of the forested soils that are grazed by livestock and wildlife are on south-facing slopes of 0 to 65 percent. Elevation ranges from about 1,000 to 5,000 feet. Slope, aspect, elevation, and the climatic and edaphic variations throughout the grazeable woodland affect the understory plant community. The time of year when the forage is ready for grazing varies depending on the aspect and elevation. Generally, forage plants at the lowest elevations have achieved adequate growth for livestock grazing by mid-May and those at the highest elevations are suitable for grazing by mid-July.

An ecological site or plant association is given for each soil in the survey area that supports vegetation suitable for grazing in the section "Detailed Soil Map Units." An ecological site or plant association is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site or association is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is

influenced by the others and influences the development of the others. The plant community of an ecological site or plant association is typified by an association of species that differs from that of other ecological sites or plant associations in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service or online at <http://www.wa.nrcs.usda.gov/>. Plant associations for the forested soils are derived from the "Field Guide for Forested Plant Associations of the Wenatchee National Forest" (Lillybridge and others, 1995).

Forestland

By Ronald A. Peyton and Dennis J. Robinson, foresters, Natural Resources Conservation Service.

The survey area is in the Southern Washington Cascades physiographic province (Franklin and Dyrness, 1973).

The area has a history of forest harvesting activity. Recently, privately owned timberland produced more than 77 million board feet of wood products and publicly managed forestland produced about 11 million board feet of wood products (Washington Timber Harvest, Washington State Department of Natural Resources, 1994).

Moisture and topography generally dictate the characteristics of the forests in the survey area. Along the eastern fringe of the forested areas, the timber stands are scattered and occur mainly as narrow bands on canyon bottoms and along canyon side slopes. These meandering strips of mixed conifer and hardwood species merge into sparse stands that are dominantly ponderosa pine. These stands are adjacent to denser stands of mixed conifer species that are at higher elevations and receive more moisture. As a result of orographic and topographic influences, a majority of the forestland in the survey area is in the western third (Howard, 1973).

The Columbia River and the gorge through which it flows also influence the characteristics of forests in the survey area. The alluvial terraces at the western edge of the survey area historically supported mixed conifer and hardwood forests. The gorge directs warm, cool air currents that impact the diversity and extent of forest vegetation along the river.

The survey area has 13 distinct forest cover types. The major forest cover types that support species that have value as commercial timber are interior ponderosa pine, interior Douglas-fir, and grand fir. Minor forest cover types include mountain hemlock, Engelmann spruce-subalpine fir, whitebark pine, western larch, lodgepole pine, Oregon white oak, and cottonwood-willow.

Historically, the forest industry in the survey area consisted primarily of saw wood products. Product diversification, changing land ownership, size of raw material, and changing economics are providing for new market opportunities for smaller logs and minor species.

The forestland has the potential to produce about 427 million cubic feet of sawtimber on acreage that is used primarily for the forest industry and about 164 million cubic feet of sawtimber on nonindustrial private acreage. Douglas-fir and ponderosa pine account for more than 80 percent of the available cubic-foot volume of sawtimber in the survey area (USDA, 1997). The remaining available cubic-foot volume is comprised of about 13 percent true fir, 6 percent lodgepole pine, and 1 percent other species.

Many kinds of insects and diseases attack forest trees in this area. The damage varies from year to year. Normally, losses are confined to individual trees or to scattered stands; however, insect populations occasionally increase and large numbers of trees are damaged or killed.

The most damaging insect in the area has been the mountain pine beetle (*Dendroctonus ponderosae*), which attacks lodgepole pine, western white pine, and young stands of ponderosa pine. The Douglas-fir beetle (*Dendroctonus pseudotsugae*), silver fir beetle (*Pseudohylesinus sericeus*), and western pine beetle (*Dendroctonus brevicomis*) have also caused extensive damage. Several other insects are becoming major problems. The western spruce budworm (*Choristoneura occidentalis*) is highly destructive to Douglas-fir, western larch, grand fir, subalpine fir, and Engelmann spruce. The Douglas-fir tussock moth (*Orgyia pseudotsugata*) can cause widespread defoliation. Outbreaks develop explosively and subside abruptly after about 3 years. The balsam woolly aphid (*Adelges piceae*) has become widely established and is highly destructive to Pacific silver fir, subalpine fir, and grand fir.

Dwarf mistletoe (*Arceuthobium spp.*) is widespread in the survey area, and it is a major factor in tree mortality and volume loss. This parasite attacks pines, Douglas-fir, and western larch of all ages. Control of dwarf mistletoe is difficult and costly, but removal of infected trees during harvesting can minimize spreading. Many other diseases, such as root rot, heart rot, needle scale, and rust, are present and may be a serious problem in a given locality.

Forest management in the survey area ranges from little, if any, management to use of intensive cultural practices such as fertilization and precommercial and commercial thinning on a preset schedule. Present stands vary widely in species, age, and diameter of trees. Selective harvesting of old growth, high-quality ponderosa pine and Douglas-fir trees has contributed to this heterogeneous nature of the stands. In addition, the regular occurrence of wildfire has produced numerous areas that are densely stocked with lodgepole pine and western larch. Many of the pole timber stands in the area are overstocked, and reduced yields are a concern.

Soil surveys are becoming increasingly more important to managers as they seek ways to increase the productivity of forestland. Depth, fertility, texture, and the available water capacity of a soil influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can be expected to grow on a site, especially in mountainous areas.

Wildlife Habitat

By Ivan L. Lines, Jr., biologist, Natural Resources Conservation Service.

Because of wide variations in elevation and precipitation, the survey area has diverse types of vegetation and wildlife habitat. The habitat ranges from coniferous forests in areas that receive as much as 60 inches of precipitation annually to shrub-steppe plant communities in the southeastern part which receives as little as 6 inches of precipitation annually.

Semiarid grassland is in general soil map units 7, 8, 15, 16, and 17. Open grassland provides habitat for species such as horned lark, meadowlark, chukar and gray partridge, badger, and ground squirrel. Where interspersed with trees, shrubs, streams, or wooded draws, these grassy plant communities provide feeding areas for mountain quail, mourning dove, black-tailed deer, turkey, and western bluebird. Raptors such as red-tailed hawk, kestrel, great horned owl, harrier, golden eagle, and rough-legged hawk prey in areas of grassland. Ponds and wetland areas within the grassland provide habitat for ducks, geese, and other water birds, particularly during the period of migration in spring.

Shrub-steppe plant communities are in general soil map units 9, 10, 11, 12, and 18. These plant communities provide habitat for many of the same species that use the areas of grassland as well as for mule deer, California quail, coyote, and jackrabbit. The irrigated portions of map units 11 and 12 provide habitat for pheasant.

General soil map units 1, 2, 3, 4, 5, 6, 13, and 17 support coniferous forests and

associated understory plants. Extensive stands of Oregon white oak are in map units 6 and 18. These forests provide habitat for Rocky Mountain elk, black-tailed deer, black bear, turkey, blue and ruffed grouse, cougar, bobcat, and Stellar's jay. Raptors in the forests include Cooper's and sharp-shinned hawk, goshawk, red-tailed hawk, and great horned owl.

Riparian plant communities are very limited in the survey area, but they provide habitat for at least 80 percent of the wildlife species in the area during some portion of their lifecycle. Several species, such as beaver, muskrat, mink, and otter, inhabit the riparian areas year round.

Streams, lakes, and areas of wetland provide habitat for waterfowl and other water-dependent birds and mammals. Concentrations of migrating waterfowl use the wetland in the Centerville area for nesting and during migration. The Conboy Lake National Wildlife Refuge in Glenwood Valley provides wetland habitat for thousands of migrating and nesting ducks and geese as well as migrating sandhill crane.

Three species of special interest inhabit the area. Bald eagle, classified as a threatened species, winter along the Klickitat River. A few peregrine falcon, classified as an endangered species, frequent the rocky cliffs along the Columbia River. A limited number of northern spotted owl, classified as a threatened species, is in remnant stands of old growth coniferous forest.

The Washington Department of Wildlife has identified two critically important types of wildlife habitat. One is winter range for deer, which is on south-facing slopes below an elevation of 2,000 feet. Key areas are along the Klickitat River and its tributaries, along Rock Creek, in the Snowden and Appleton areas, and along Major Creek. The second is turkey roosting areas, which are in coniferous forests and in mixed stands of ponderosa pine and Oregon white oak. Good roosting areas have a mixture of mature and young trees. Important areas are in the High Prairie area and in the Major Creek drainageway (fig. 12).

Hydric Soils

Table 4 lists the map unit components in the survey area that are rated as hydric soils. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated



Figure 12.—Wild turkey use the mixed stands of ponderosa pine and Oregon white oak on soils such as the Legall and Sauter series.

with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 1998) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the

depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering properties, physical and chemical properties, and pertinent soil and water features.

Engineering Properties

[Table 5](#) gives the engineering classifications and the range of properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001; PCA, 1973) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000; PCA, 1973).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages

are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 6 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In **table 6**, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $1/3$ - or $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per

hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In [table 6](#), the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in [table 6](#) as the K factor (K_w and K_f) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor K_w indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor K_f indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter,

and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 7 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 8 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 8 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 8 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of

gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 9 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. [Table 10](#) shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll (*Xer*, meaning dry, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argixerolls (*Argi*, meaning clay accumulation, plus *xeroll*, the suborder of the Mollisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. An example is Ultic Argixerolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, superactive, mesic Ultic Argixerolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the taxonomic unit is described. The detailed description of each soil horizon follows standards in

the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

Andic Haplocryalfs

Depth class: Shallow and moderately deep

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Colluvium derived from basalt mixed with volcanic ash

Slope range: 2 to 45 percent

Elevation: 4,400 to 5,800 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 36 to 39 degrees F

Frost-free period: 40 to 70 days

Reference pedon of Andic Haplocryalfs on an 8-percent, south-facing slope at an elevation of 5,500 feet; about 600 feet south and 3,500 feet west of the northeast corner of sec. 18, T. 6 N., R. 16 E.; latitude 46 degrees, 0 minutes, 35 seconds north and longitude 120 degrees, 51 minutes, 12 seconds west.

- A1—0 to 5 inches; dark brown (7.5YR 4/2) gravelly ashy loam, dark reddish brown (5YR 3/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and few fine roots; many very fine irregular pores; 20 percent gravel; moderately acid (pH 5.6); gradual smooth boundary.
- A2—5 to 12 inches; dark brown (7.5YR 4/2) gravelly ashy loam, dark reddish brown (5YR 3/2) moist; weak fine granular structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and few fine roots; many very fine irregular and few very fine tubular pores; 20 percent gravel; moderately acid (pH 5.8); clear smooth boundary.
- Bw—12 to 17 inches; dark brown (7.5YR 4/3) very gravelly ashy loam, dark reddish brown (5YR 3/2) moist; weak very fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and few fine roots; common very fine irregular and few very fine tubular pores; 40 percent gravel; moderately acid (pH 5.8); clear smooth boundary.
- Bt—17 to 27 inches; brown (7.5YR 5/3) very gravelly ashy loam, dark reddish brown (5YR 3/3) moist; weak fine angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine irregular and tubular pores; few faint clay films in pores; 50 percent gravel and 10 percent cobbles; moderately acid (pH 5.8); gradual wavy boundary.
- BCt—27 to 39 inches; brown (7.5YR 5/4) very gravelly ashy loam, dark reddish brown (5YR 3/4) moist; weak fine angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine irregular and tubular pores; few faint clay films in pores and on faces of peds; 50 percent gravel; moderately acid (pH 5.8); abrupt wavy boundary.
- 2R—39 to 43 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 27 inches

Thickness of volcanic ash influence—0 to 39 inches

Depth to bedrock—10 to 40 inches

Characteristics of particle-size control section—18 to 25 percent clay and 50 to 65 percent rock fragments

Reaction—slightly acid or moderately acid

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bt horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly ashy loam or very cobbly ashy loam

BCt horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—4 to 6 dry or moist

Texture—very gravelly ashy loam, very cobbly ashy loam, or extremely gravelly ashy loam

Aqualfs

Depth class: Very deep

Drainage class: Poorly drained

Position on landscape: Alluvial fans

Parent material: Alluvium

Slope range: 0 to 2 percent

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 45 to 46 degrees F

Frost-free period: 70 to 90 days

Reference pedon of Aqualfs on a 1-percent slope at an elevation of 2,100 feet; about 1,000 feet north and 2,000 feet east of the southwest corner of sec. 12, T. 4 N., R. 12 E.; latitude 45 degrees, 50 minutes, 30 seconds north and longitude 121 degrees, 52 minutes, 36 seconds west.

A—0 to 6 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine irregular pores; slightly acid (pH 6.2); abrupt smooth boundary.

AB—6 to 13 inches; gray (10YR 6/1) silty clay loam, very dark gray (10YR 3/1) moist; few very fine prominent redoximorphic concentrations that are yellowish red (5YR 5/6) moist; weak medium granular structure; soft, very friable, moderately sticky and moderately plastic; many very fine and common fine roots; many very fine irregular pores; slightly acid (pH 6.2); abrupt wavy boundary.

Bt1—13 to 17 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; few fine prominent redoximorphic concentrations that are yellowish red (5YR 5/6) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine irregular pores; few faint clay films on faces of peds and in pores; slightly acid (pH 6.1); clear wavy boundary.

Bt2—17 to 27 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; few fine prominent redoximorphic concentrations that

are yellowish red (5YR 5/6) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine roots; many fine and few coarse irregular pores; common distinct clay films on faces of peds and in pores; slightly acid (pH 6.3); clear smooth boundary.

Bt3—27 to 36 inches; light brownish gray (10YR 6/2) sandy clay loam, grayish brown (10YR 5/2) moist; many fine prominent redoximorphic concentrations that are yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, very firm, slightly sticky and moderately plastic; few fine roots; few fine tubular and many fine and few coarse irregular pores; common distinct clay films on faces of peds and in pores; slightly acid (pH 6.2); clear smooth boundary.

C1—36 to 47 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; many fine prominent redoximorphic concentrations that are yellowish red (5YR 4/6) moist; massive; soft, very friable, slightly sticky and moderately plastic; few fine roots; many fine irregular pores; slightly acid (pH 6.4); clear smooth boundary.

C2—47 to 60 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; many fine prominent redoximorphic concentrations that are yellowish red (5YR 5/6) moist; massive; soft, friable, slightly sticky and moderately plastic; few fine roots; many fine irregular pores; neutral (pH 6.6).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—25 to 35 percent clay and 0 to 10 percent rock fragments

Water table—present any time of year

Ponding—may occur early in spring

A horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—1 or 2 dry or moist

Reaction—slightly acid or moderately acid

Bt horizon

Value—5 or 6 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—clay loam or silty clay loam in the upper part and loam or sandy clay loam in the lower part

Reaction—slightly acid or moderately acid

C horizon

Hue—10YR or 5YR

Value—5 or 6 dry, 3 to 5 moist

Texture—loam, clay loam, or sandy clay loam

Reaction—neutral or slightly acid

Aquic Haploxerolls

Depth class: Very deep

Drainage class: Somewhat poorly drained

Position on landscape: Terraces

Parent material: Loess and alluvium

Slope range: 0 to 2 percent

Elevation: 100 to 120 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 150 to 180 days

Reference pedon of Aquic Haploxerolls at an elevation of 100 feet; about 1,620 feet south and 930 feet west of the northeast corner of sec. 32, T. 3 N., R. 11 E.; latitude 45 degrees 42 minutes 21 seconds north and longitude 121 degrees 26 minutes 52 seconds west.

Ap—0 to 8 inches; dark brown (10YR 3/3) silt loam, very dark brown (10YR 2/2) moist; weak very fine and fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine tubular pores; slightly acid (pH 6.2); clear smooth boundary.

Bw1—8 to 16 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; few fine distinct redoximorphic concentrations that are strong brown (2.5YR 5/8) moist; weak very fine subangular blocky structure and weak very fine and fine granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine tubular pores; moderately acid (pH 6.0); clear smooth boundary.

Bw2—16 to 25 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; common fine distinct redoximorphic concentrations that are light brownish gray (10YR 6/2) and strong brown (7.5YR 5/8) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular pores; moderately acid (pH 5.8); clear wavy boundary.

Bg1—25 to 42 inches; light olive brown (2.5Y 5/4) silt loam, olive brown (2.5Y 3/4) moist; common fine distinct redoximorphic concentrations that are light brownish gray (2.5Y 6/2) and strong brown (7.5YR 5/8) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; moderately acid (pH 5.6); clear wavy boundary.

Bg2—42 to 60 inches; olive gray (5Y 5/2), stratified silty clay loam, olive gray (5Y 4/2) moist; massive; hard, firm, moderately sticky and slightly plastic; few very fine roots; few very fine tubular pores; strongly acid (pH 5.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 25 inches

Depth to bedrock—more than 60 inches

Water table—may be present any time of year

Characteristics of particle-size control section—10 to 25 percent clay and 0 to 5 percent rock fragments

Ap horizon

Value—3 or 4 dry, 2 or 3 moist

Reaction—slightly acid or moderately acid

Bw horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 moist

Texture—silt loam or loam

Reaction—slightly acid or moderately acid

Bg horizon

Hue—10YR, 2.5Y, or 5Y

Value—3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—silt loam, loam, and stratified sand to silty clay loam

Reaction—slightly acid to strongly acid

Aquolls

Depth class: Deep

Drainage class: Poorly drained

Position on landscape: Terraces

Parent material: Alluvium

Slope range: 0 to 3 percent

Elevation: 70 to 600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Reference pedon of Aquolls on a 1-percent slope at an elevation of 160 feet; about 1,650 feet south and 2,500 feet west of the northeast corner of sec. 33, T. 2 N., R. 13 E.; latitude 45 degrees 37 minutes 4 seconds north and longitude 121 degrees 11 minutes 20 seconds west.

A—0 to 9 inches; grayish brown (10YR 5/2) loam, very dark brown (10YR 2/2) moist; few fine faint redoximorphic concentrations that are dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; many fine and medium tubular pores; slightly acid (pH 6.7); clear smooth boundary.

Bg1—9 to 26 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; common fine faint redoximorphic concentrations that are dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many fine and medium and few coarse tubular pores; slightly acid (pH 6.7); clear wavy boundary.

Bg2—26 to 32 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark brown (10YR 2/2) moist; common fine faint redoximorphic concentrations that are dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine and medium tubular pores; 10 percent gravel and 15 percent cobbles; slightly acid (pH 6.7); gradual wavy boundary.

2C—32 to 45 inches; pale olive (5Y 6/3) very cobbly clay loam, olive (5Y 5/3) moist; massive; soft, friable, sticky and plastic; few fine and medium roots; 15 percent gravel and 25 percent cobbles; slightly acid (pH 6.7); abrupt smooth boundary.

3R—45 to 49 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 32 inches

Depth to bedrock—40 to 60 inches

Characteristics of particle-size control section—15 to 35 percent clay and 15 to 35 percent rock fragments

Water table—may be present in winter to early in summer

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bg horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—loam or cobbly loam

2C horizon

Hue—2.5Y or 5Y

Value—5 or 6 dry, 3 to 5 dry

Texture—very cobbly clay loam or cobbly clay loam

Reaction—slightly acid or moderately acid

Asotin Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Colluvium derived from basalt with loess and a minor amount of volcanic ash

Slope range: 5 to 30 percent

Elevation: 800 to 2,200 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 135 to 160 days

Typical pedon of Asotin silt loam on a 9-percent, southeast-facing slope at an elevation of 1,680 feet; about 750 feet north and 1,750 feet west of the southeast corner of sec. 3, T. 3 N., R. 18 E.; latitude 45 degrees 46 minutes 4 seconds north and longitude 120 degrees 32 minutes 15 seconds west.

Ap1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; slightly hard, very friable, slightly sticky and nonplastic; many very fine and few medium roots; many fine and very fine pores in peds; slightly alkaline (pH 7.8); clear wavy boundary.

Ap2—4 to 10 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many fine and few medium roots; common fine and very fine and few medium pores; slightly alkaline (pH 7.8); gradual wavy boundary.

Bw1—10 to 23 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak prismatic structure; hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; common fine and few medium pores; slightly alkaline (pH 7.8); clear wavy boundary.

Bw2—23 to 32 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak prismatic structure; hard, friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine pores; 5 percent basalt gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bk—32 to 38 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few medium and fine roots; many fine pores partially filled with calcium carbonate; 5 percent basalt gravel; strongly effervescent; strongly alkaline (pH 8.2); abrupt irregular boundary.

2R—38 to 42 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 16 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—10 to 18 percent clay and 0 to 20 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—5 to 8 dry, 4 to 7 moist

Chroma—2 or 3 dry or moist

Texture—gravelly silt loam or silt loam

Calcium carbonate equivalent—5 to 15 percent

Reaction—moderately alkaline or strongly alkaline

Badge Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 45 percent

Elevation: 1,500 to 3,500 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 110 to 150 days

Typical pedon of Badge very stony silt loam on a 45-percent, northeast-facing slope at an elevation of 2,580 feet; about 1,750 feet south and 1,300 feet east of the northwest corner of sec. 13, T. 5 N., R. 20 E.; latitude 45 degrees 55 minutes 11 seconds north and longitude 120 degrees 15 minutes 21 seconds west.

A—0 to 11 inches; brown (7.5YR 4/2) very stony silt loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular and common fine tubular pores; 15 percent gravel, 10 percent cobbles, and 15 percent stones; neutral (pH 6.8); clear smooth boundary.

Bt—11 to 41 inches; brown (7.5YR 5/4) very cobbly silt loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; many fine and medium tubular pores; few faint clay films in pores and on faces of peds; 15 percent gravel and 30 percent cobbles; neutral (pH 7.1); clear wavy boundary.

C—41 to 60 inches; light brown (7.5YR 6/4) very cobbly silt loam, brown (7.5YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few very fine and fine roots; common fine and medium tubular pores; 10 percent gravel and 35 percent cobbles; calcium carbonate coatings on underside of rock fragments; slightly alkaline (pH 7.1).

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—averages 24 to 35 percent clay and 45 to 70 percent rock fragments

A horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bt horizon

Value—4 to 6 dry

Chroma—3 or 4 dry or moist

Texture—very cobbly silt loam, very gravelly clay loam, or extremely cobbly loam

Reaction—neutral or slightly alkaline

C horizon

Hue—2.5Y, 10YR, or 7.5YR

Value—4 to 6 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very cobbly silt loam, extremely gravelly silt loam, or very gravelly loam

Calcium carbonate equivalent—0 to 3 percent

Reaction—slightly alkaline or moderately alkaline

Bakeoven Series

Depth class: Very shallow

Drainage class: Well drained

Position on landscape: Plateaus and canyon shoulder slopes

Parent material: Residuum derived from basalt mixed with loess

Slope range: 0 to 30 percent

Elevation: 300 to 4,000 feet

Mean annual precipitation: 9 to 16 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 125 to 180 days

Typical pedon of Bakeoven very cobbly loam on a 3-percent slope at an elevation of 2,830 feet; about 900 feet south and 40 feet west of the northeast corner of sec. 8, T. 5 N., R. 20 E.; latitude 45 degrees 56 minutes 16 seconds north and longitude 120 degrees 19 minutes 27 seconds west.

A1—0 to 4 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; many very fine and few medium roots; few fine tubular and common fine irregular pores; 20 percent gravel, 25 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt smooth boundary.

A2—4 to 6 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate thin platy structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 30 percent gravel and 10 percent cobbles; neutral (pH 6.8); abrupt smooth boundary.

Bw1—6 to 9 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular and common very fine irregular pores; 35 percent gravel and 10 percent cobbles; neutral (pH 7.0); clear wavy boundary.

Bw2—9 to 10 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark

yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; hard, firm, sticky and slightly plastic; few very fine roots; few very fine tubular and common fine irregular pores; 35 percent gravel and 5 percent cobbles; neutral (pH 6.8); abrupt wavy boundary.

2R—10 to 14 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—4 to 10 inches

Depth to bedrock—4 to 10 inches

Characteristics of particle-size control section—18 to 30 percent clay and 35 to 60 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 to 4 dry, 2 or 3 moist

Reaction—slightly acid to slightly alkaline

Bw horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 to 4 dry, 2 or 3 moist

Texture—very cobbly loam, very gravelly loam, or very gravelly clay loam

Reaction—neutral or slightly alkaline

Balake Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces and hillslopes

Parent material: Conglomerate mixed with loess

Slope range: 5 to 65 percent

Elevation: 200 to 1,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Typical pedon of Balake very gravelly loam on a 5-percent, northeast-facing slope at an elevation of 420 feet; about 1,000 feet east and 1,750 feet north of the southwest corner of sec. 29, T. 3 N., R. 12 E.; latitude 45 degrees 42 minutes 57 seconds north and longitude 121 degrees 20 minutes 12 seconds west.

A1—0 to 5 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; 40 percent gravel; strongly acid (pH 5.4); clear smooth boundary.

A2—5 to 12 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate very fine and fine subangular blocky and granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; common fine tubular pores; 45 percent gravel; moderately acid (pH 5.6); clear wavy boundary.

Bt1—12 to 18 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine, fine, medium, and coarse roots; common fine tubular pores; few faint clay films on faces of peds and lining pores; 40 percent gravel; moderately acid (pH 5.8); clear wavy boundary.

- Bt2—18 to 28 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; common fine tubular pores; common distinct clay films on faces of peds and lining pores; 45 percent gravel; moderately acid (pH 5.8); clear wavy boundary.
- Bt3—28 to 45 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; common fine tubular pores; common distinct clay films on faces of peds and lining pores; 45 percent gravel; moderately acid (pH 6.0); clear wavy boundary.
- Bt4—45 to 60 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common fine tubular pores; few distinct clay films on faces of peds and lining pores; 45 percent gravel and 5 percent cobbles; moderately acid (pH 6.0).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—25 to 35 percent clay and 35 to 55 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—strongly acid to slightly acid

Bt horizon

Value—4 to 6 dry, 3 or 4 moist

Chroma—4 or 6 dry or moist

Texture—very gravelly loam or very gravelly clay loam

Reaction—slightly acid or moderately acid

Beezee Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Elevation: 100 to 3,000 feet

Mean annual precipitation: 25 to 45 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 100 to 130 days

Typical pedon of Beezee cobbly loam on a 35-percent, southeast-facing side slope at an elevation of 1,240 feet; about 100 feet north and 300 feet east of the southwest corner of sec. 2, T. 4 N., R. 11 E.; latitude 45 degrees 51 minutes 24 seconds north and longitude 121 degrees 24 minutes 4 seconds west.

- A—0 to 10 inches; brown (7.5YR 4/3) cobbly loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; 10 percent gravel and 15 percent cobbles; moderately acid (pH 6.0); gradual wavy boundary.

AB—10 to 18 inches; brown (7.5YR 5/3) very cobbly loam, dark brown (7.5YR 3/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many fine tubular pores; 20 percent gravel and 25 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.

Bt1—18 to 33 inches; brown (7.5YR 5/4) very cobbly loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine and medium roots; common fine tubular pores; common distinct clay films on faces of peds and in pores; 30 percent gravel and 30 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.

Bt2—33 to 60 inches; light brown (7.5YR 6/4) cobbly loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; common fine tubular pores; many distinct clay films on faces of peds and in pores; 10 percent gravel, 10 percent cobbles, and 20 percent basalt pararock fragments; slightly acid (pH 6.4).

Range in Characteristics

Thickness of mollic epipedon—15 to 20 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—20 to 35 percent clay and 20 to 60 percent rock fragments with an average of more than 35 percent

A horizon

Hue—5YR to 7.5YR

Value—3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—slightly acid or moderately acid

AB horizon

Hue—5YR or 7.5YR

Chroma—3 to 5 moist

Texture—cobbly loam or very cobbly loam

Reaction—slightly acid or moderately acid

Bt horizon

Hue—5YR to 10YR

Value—5 or 6 dry, 3 to 6 moist

Texture—very cobbly loam or very cobbly clay loam in the upper part and cobbly loam or cobbly clay loam in the lower part

Reaction—slightly acid or moderately acid

Benwy Series

Depth class: Deep and very deep to a duripan

Drainage class: Well drained

Position on landscape: Plateaus and hillslopes

Parent material: Loess and old alluvium

Slope range: 2 to 20 percent

Elevation: 500 to 2,100 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 130 to 170 days

Typical pedon of Benwy silt loam on an 8-percent, northeast-facing slope at an elevation of 1,640 feet; about 1,500 feet south and 3,000 feet west of the northeast

corner of sec. 19, T. 5 N., R. 22 E.; latitude 45 degrees 54 minutes 25 seconds north and longitude 120 degrees 6 minutes 24 seconds west.

- A—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular and few fine tubular pores; 5 percent gravel; neutral (pH 7.0); abrupt smooth boundary.
- AB—4 to 10 inches; yellowish brown (10YR 5/4) silt loam, very dark grayish brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; many very fine and fine roots; few very fine tubular pores; neutral (pH 7.2); clear wavy boundary.
- Bt1—10 to 22 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine and fine tubular pores; slightly alkaline (pH 7.6); clear wavy boundary.
- Bt2—22 to 37 inches; light yellowish brown (10YR 6/4) silt loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine roots; common very fine and fine tubular pores; common distinct clay films on faces of peds and in pores; 5 percent gravel; slightly alkaline (pH 7.8); abrupt wavy boundary.
- Btk—37 to 46 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, very firm, moderately sticky and moderately plastic; common fine roots; many very fine and fine tubular pores; common distinct clay films on faces of peds; strongly effervescent; many fine irregular seams of soft calcium carbonate; 25 percent gravel and 5 percent cobbles; slightly alkaline (pH 8.2); clear wavy boundary.
- Bk—46 to 60 inches; white (10YR 8/2) gravelly silt loam, pale brown (10YR 6/3) moist; massive; slightly hard, firm, nonsticky and nonplastic; few fine roots; many very fine and fine tubular pores; medium irregular segregations of soft calcium carbonate; violently effervescent; 20 percent gravel; moderately alkaline (pH 8.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to duripan—40 to 60 inches or more

Characteristics of particle-size control section—18 to 28 percent clay and 10 to 25 percent rounded rock fragments

A horizon

Value—4 or 5 dry

Chroma—2 or 3 moist

Reaction—neutral or slightly alkaline

AB horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam or loam

Reaction—neutral or slightly alkaline

Bt horizon

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—loam, silt loam, or gravelly clay loam

Reaction—slightly alkaline or moderately alkaline

Btk and Bk horizons

Value—5 to 8 dry, 4 to 6 moist

Chroma—2 to 4 dry, 3 or 4 moist

Texture—silt loam, loam, gravelly silt loam, or gravelly clay loam

Calcium carbonate equivalent—5 to 10 percent

Reaction—slightly alkaline to strongly alkaline

Bercumb Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Summits, footslopes, and backslopes of mountains

Parent material: Residuum and colluvium derived from basalt mixed with volcanic ash in the upper part

Slope range: 5 to 75 percent

Elevation: 1,400 to 3,100 feet

Mean annual precipitation: 38 to 55 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 70 to 95 days

Typical pedon of Bercumb cobbly ashy loam on a 20-percent, south-facing footslope at an elevation of 2,590 feet; about 3,200 feet north and 1,000 feet west of the southeast corner of sec. 28, T. 6 N., R. 11 E.; latitude 45 degrees 58 minutes 47 seconds north and longitude 121 degrees 25 minutes 50 seconds west.

Oi—1 inch to 0; slightly decomposed needles, leaves, and twigs.

A1—0 to 4 inches; dark brown (7.5YR 4/3) cobbly ashy loam, dark reddish brown (5YR 3/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; many fine irregular pores; 10 percent gravel and 10 percent cobbles; neutral (pH 6.6); clear smooth boundary.

A2—4 to 10 inches; brown (7.5YR 5/3) gravelly ashy loam, dark reddish brown (5YR 3/3) moist; weak very fine subangular blocky structure parting to weak fine granular; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; many fine irregular and many very fine tubular pores; 20 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

BA—10 to 19 inches; strong brown (7.5YR 5/6) gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many very fine irregular and many very fine and fine tubular pores; 25 percent gravel; slightly acid (pH 6.2); gradual smooth boundary.

Bw1—19 to 29 inches; strong brown (7.5YR 5/6) gravelly loam, dark reddish brown (5YR 3/4) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine irregular and tubular pores; 15 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); gradual smooth boundary.

Bw2—29 to 53 inches; strong brown (7.5YR 5/6) very gravelly loam, dark reddish brown (5YR 3/4) moist; moderate very fine and fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; many fine irregular and common very fine and fine tubular pores; 35 percent gravel and 5 percent cobbles; neutral (pH 6.6); clear smooth boundary.

BC—53 to 60 inches; strong brown (7.5YR 5/6) very cobbly loam, reddish brown (5YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine irregular and tubular pores; 20 percent gravel, 15 percent cobbles, and 20 percent saprolite pararock fragments; neutral (pH 6.8).

Range in Characteristics

Thickness of umbric epipedon—10 to 12 inches

Thickness of volcanic ash influence—8 to 12 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—7 to 12 percent clay and 15 to 35 percent rock fragments

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—cobbly ashy loam in the upper part and gravelly ashy loam and gravelly ashy sandy loam in the lower part

Reaction—slightly acid or moderately acid

BA and Bw horizons

Hue—5YR to 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—gravelly loam or gravelly sandy loam in the upper part and very gravelly loam in the lower part

Reaction—slightly acid or moderately acid

BC horizon

Hue—5YR to 10YR

Value—4 to 6 dry, 4 or 5 moist

Chroma—4 to 6 dry or moist

Texture—gravelly loam, gravelly sandy loam, extremely gravelly loam, very cobbly loam, or very gravelly loam

Reaction—neutral to moderately acid

Berson Series

Depth class: Deep

Drainage class: Well drained

Position on landscape: Footslopes and backslopes of mountains

Parent material: Colluvium and residuum derived from basalt mixed with loess and volcanic ash in the upper part

Slope range: 5 to 45 percent

Elevation: 2,600 to 4,600 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 80 to 120 days

Typical pedon of Berson gravelly ashy loam on an 8-percent, southeast-facing slope at an elevation of 3,420 feet; about 1,500 feet north and 1,600 feet east of the southwest corner of sec. 31, T. 6 N., R. 18 E.; latitude 45 degrees 57 minutes 26 seconds north and longitude 120 degrees 36 minutes 30 seconds west.

Oi—1 inch to 0; slightly decomposed needles and twigs.

A1—0 to 4 inches; reddish brown (5YR 5/3) gravelly ashy loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; 15 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

A2—4 to 10 inches; reddish brown (5YR 5/3) gravelly ashy loam, dark reddish brown

(5YR 3/3) moist; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few medium roots; many very fine irregular pores; 15 percent gravel and 10 percent cobbles; slightly acid (pH 6.2); abrupt wavy boundary.

AB—10 to 18 inches; dark brown (7.5YR 4/4) very gravelly loam, dark reddish brown (5YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine irregular and tubular pores; 25 percent gravel and 10 percent cobbles; slightly acid (pH 6.2); clear smooth boundary.

BA—18 to 32 inches; reddish brown (5YR 5/4) very gravelly loam, dark reddish brown (5YR 3/4) moist; moderate fine subangular blocky structure parting to moderate very fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; many very fine irregular pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; moderately acid (pH 6.0); clear smooth boundary.

Bt—32 to 43 inches; strong brown (7.5YR 5/6) extremely stony loam, reddish brown (5YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular pores; common distinct clay films on faces of peds and lining pores; 25 percent gravel, 20 percent cobbles, and 20 percent stones; moderately acid (pH 5.8); clear wavy boundary.

2BCt—43 to 57 inches; strong brown (7.5YR 5/6) extremely stony loam, reddish brown (5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few discontinuous clay films on vertical faces of peds; 20 percent gravel, 20 percent cobbles, and 20 percent stones of igneous rock; moderately acid (pH 5.8); clear wavy boundary.

Cr—57 to 67 inches; weathered basalt.

Range in Characteristics

Thickness of mollic epipedon—12 to 18 inches

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—15 to 25 percent clay and 15 to 75 percent rock fragments with an average of more than 35 percent

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—2 to 4 dry, 2 or 3 moist

Reaction—slightly acid or moderately acid

AB and BA horizons

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—gravelly loam or very gravelly loam

Reaction—slightly acid or moderately acid

Bt and BCt horizons

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—extremely stony loam, very cobbly loam, or very stony loam

Reaction—slightly acid or moderately acid

Bickleton Series

Depth class: Deep

Drainage class: Well drained

Position on landscape: Plateaus

Parent material: Loess over mixed older loess, slope alluvium, and colluvium derived from basalt

Slope range: 2 to 15 percent

Elevation: 2,600 to 3,600 feet

Mean annual precipitation: 11 to 16 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 125 to 150 days

Typical pedon of Bickleton silt loam on a 3-percent slope at an elevation of 3,180 feet; about 200 feet north and 100 feet east of the southwest corner of sec. 10, T. 6 N., R. 20 E.; latitude 46 degrees 0 minutes 48 seconds north and longitude 120 degrees 18 minutes 6 seconds west.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine roots; common very fine tubular pores; neutral (pH 6.6); abrupt smooth boundary.

A—8 to 12 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak thin platy structure; slightly hard, friable, nonsticky and slightly plastic; many very fine roots; many very fine tubular pores; neutral (pH 6.8); clear smooth boundary.

AB—12 to 19 inches; dark grayish brown (10YR 4/2) silt loam, dark brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly sticky and slightly plastic; many very fine roots; common very fine tubular and few very fine irregular pores; neutral (pH 7.2); clear wavy boundary.

Bw—19 to 30 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; slightly alkaline (pH 7.6); abrupt wavy boundary.

Bk1—30 to 38 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; many very fine and fine tubular pores; violently effervescent, calcium carbonate segregated in many fine irregularly shaped filaments; 5 percent gravel; strongly alkaline (pH 8.8); abrupt wavy boundary.

Bk2—38 to 44 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many fine tubular pores; slightly effervescent, calcium carbonate segregated in few fine irregularly shaped filaments; 10 percent gravel; strongly alkaline (pH 8.6); abrupt wavy boundary.

2Bk3—44 to 52 inches; very pale brown (10YR 7/4) very gravelly silty clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and plastic; few very fine roots; common very fine tubular pores; violently effervescent, calcium carbonate segregated in many fine irregularly shaped filaments; 35 percent gravel; moderately alkaline (pH 8.0); abrupt smooth boundary.

2R—52 to 56 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 19 inches

Depth to bedrock—40 to 60 inches

Characteristics of particle-size control section—18 to 30 percent clay and 0 to 10 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

AB horizon

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—4 to 6 dry, 4 moist

Chroma—2 or 3 dry or moist

Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—5 or 6 dry, 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam or silty clay loam

Calcium carbonate equivalent—1 to 5 percent

Reaction—slightly alkaline to strongly alkaline

2Bk horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly silty clay loam or extremely gravelly silty clay loam

Calcium carbonate equivalent—15 to 35 percent

Reaction—moderately alkaline or strongly alkaline

Blockhouse Series

Depth class: Very deep

Drainage class: Moderately well drained

Position on landscape: Swales of plateaus and broad alluvial plains

Parent material: Alluvium

Slope range: 0 to 10 percent

Elevation: 1,400 to 2,200 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Blockhouse silt loam on a 1-percent slope at an elevation of 1,680 feet; about 200 feet north and 1,000 feet west of the southeast corner of sec. 12, T. 4 N., R. 15 E.; latitude 45 degrees 50 minutes 24 seconds north and longitude 120 degrees 52 minutes 0 seconds west.

Ap—0 to 7 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; weak medium granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; neutral (pH 6.6); abrupt smooth boundary.

A—7 to 12 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; weak fine

subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine tubular and common fine irregular pores; neutral (pH 6.6); clear smooth boundary.

BAt—12 to 29 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark brown (10YR 2/2) moist; moderate coarse prismatic structure; hard, friable, moderately sticky and moderately plastic; few fine roots; many fine tubular pores; many distinct clay films on faces of peds and in pores; neutral (pH 6.8); clear smooth boundary.

Bt1—29 to 44 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common fine tubular pores; many distinct clay films on faces of peds and in pores; neutral (pH 6.8); abrupt wavy boundary.

Bt2—44 to 60 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; common fine distinct redoximorphic concentrations that are yellowish brown (10YR 5/6) moist; weak coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine tubular pores; common distinct clay films on faces of peds; neutral (pH 6.8).

Range in Characteristics

Thickness of mollic epipedon—20 to 40 inches

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—20 to 35 percent

Reaction—neutral or slightly acid throughout

Water table—may be present in winter to spring

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

BAt horizon

Texture—silt loam or silty clay loam

Bt horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—silt loam, clay loam, or loam

Bocker Series

Depth class: Very shallow

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Colluvium and residuum derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 30 percent

Elevation: 2,600 to 4,700 feet

Mean annual precipitation: 17 to 30 inches

Mean annual air temperature: 41 to 45 degrees F

Frost-free period: 60 to 130 days

Typical pedon of Bocker very cobbly silt loam on a 10-percent, south-facing slope at an elevation of 3,400 feet; about 1,400 feet east and 900 feet north of the southwest corner of sec. 33, T. 6 N., R. 18 E.; latitude 45 degrees 57 minutes 54 seconds north and longitude 120 degrees 33 minutes 24 seconds west.

A—0 to 2 inches; reddish brown (5YR 5/3) very cobbly silt loam, dark reddish brown (5YR 3/2) moist; weak medium and thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine irregular pores; 20 percent cobbles and 30 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

Bw—2 to 10 inches; reddish brown (5YR 5/3) very gravelly loam, dark reddish brown (5YR 3/3) moist; weak fine angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine irregular and few very fine tubular pores; 40 percent gravel; neutral (pH 6.6); abrupt irregular boundary.

R—10 to 14 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—4 to 10 inches

Depth to bedrock—4 to 10 inches

Characteristics of particle-size control section—18 to 24 percent clay and 35 to 70 percent rock fragments

Reaction—neutral or slightly acid throughout

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 moist, 2 to 4 dry

Bw horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 moist, 2 to 4 dry

Texture—very gravelly loam, very cobbly silt loam, or extremely cobbly loam

Bolicker Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Footslopes and backslopes of mountains

Parent material: Loess over colluvium derived from basalt

Slope range: 15 to 40 percent

Elevation: 1,100 to 1,800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 140 to 160 days

Typical pedon of Bolicker silt loam on a 17-percent, south-facing slope at an elevation of 1,460 feet; about 2,800 feet south and 100 feet east of the northwest corner of sec. 12, T. 3 N., R. 19 E.; latitude 45 degrees 45 minutes 24 seconds north and longitude 120 degrees 23 minutes 12 seconds west.

A1—0 to 7 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; few medium and many fine roots; many very fine tubular pores; neutral (pH 6.8); clear smooth boundary.

A2—7 to 18 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; few medium and common fine roots; common fine tubular pores; 5 percent gravel; few calcium carbonate concretions; neutral (pH 7.2); gradual wavy boundary.

Bw—18 to 25 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist;

moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and common fine roots; few fine irregular pores; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

2Bk1—25 to 45 inches; very pale brown (10YR 8/3) silt loam, very pale brown (10YR 7/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, sticky and plastic; few fine roots; common very fine and few fine irregular pores; 10 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

2Bk2—45 to 60 inches; white (10YR 8/2) loam, pale brown (10YR 6/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine tubular pores; 10 percent cobbles; moderately alkaline (pH 8.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 18 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—10 to 18 percent clay and 10 to 35 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—loam or silt loam

2Bk horizon

Value—5 to 8 dry, 3 to 7 moist

Chroma—2 or 3 dry or moist

Texture—silt loam, loam, cobbly loam, or gravelly loam

Calcium carbonate equivalent—5 to 15 percent

Reaction—moderately alkaline or strongly alkaline

Borfin Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Canyon shoulder slopes

Parent material: Old alluvial deposits over a duripan underlain by sandstone

Slope range: 30 to 50 percent

Elevation: 400 to 2,900 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Borfin cobbly clay loam on a 30-percent, northwest-facing slope at an elevation of 1,550 feet; about 750 feet north and 500 feet east of the southwest corner of sec. 9, T. 5 N., R. 22 E.; latitude 45 degrees 55 minutes 33 seconds north and longitude 120 degrees 4 minutes 22 seconds west.

A—0 to 7 inches; brown (10YR 5/3) cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine irregular pores; 2 percent stones on

surface, 15 percent cobbles, and 10 percent gravel; neutral (pH 7.2); clear smooth boundary.

Bt—7 to 18 inches; brown (10YR 4/3) very cobbly clay, dark brown (10YR 3/3) moist; strong fine and medium subangular blocky structure; very hard, firm, sticky and plastic; many very fine and common fine roots; common fine tubular pores; 30 percent cobbles and 20 percent gravel; many prominent clay films on faces of peds; slightly alkaline (pH 7.4); clear wavy boundary.

Btk—18 to 24 inches; pale brown (10YR 6/3) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and few fine roots; common fine and medium tubular pores; many distinct clay films on faces of peds and in pores; fine irregular filaments of calcium carbonate; strongly effervescent; 25 percent gravel; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bkqm—24 to 34 inches; white (10YR 8/2) indurated duripan cemented with calcium carbonate and silica, grayish brown (10YR 5/2) moist; few very fine roots on top of horizon; violently effervescent; 20 percent gravel; moderately alkaline (pH 8.4); clear wavy boundary.

2R—34 to 38 inches; sandstone.

Range in Characteristics

Thickness of mollic epipedon—10 to 18 inches

Depth to a duripan—20 to 36 inches

Depth to bedrock—24 to 40 inches

Characteristics of particle-size control section—35 to 60 percent clay and 35 to 50 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bt horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly clay or very cobbly clay

Reaction—neutral or slightly alkaline

Btk horizon

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 to 5 dry or moist

Texture—clay loam, gravelly clay loam, or gravelly clay

Calcium carbonate equivalent—1 to 5 percent

Reaction—slightly alkaline or moderately alkaline

Bkqm horizon

Value—6 to 8 dry

Chroma—2 to 5 dry or moist

Broadax Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes and plateaus

Parent material: Loess

Slope range: 2 to 15 percent

Elevation: 1,000 to 3,000 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Typical pedon of Broadax silt loam on a 5-percent slope at an elevation of 2,665 feet; about 2,400 feet north and 40 feet east of the southwest corner of sec. 10, T. 6 N., R. 21 E.; latitude 46 degrees 1 minute 9 seconds north and longitude 120 degrees 10 minutes 34 seconds west.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular and common fine tubular pores; neutral (pH 6.6); abrupt smooth boundary.

A—7 to 17 inches; brown (10YR 5/3) silt loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine and common fine roots; many very fine and fine tubular pores; neutral (pH 6.8); clear wavy boundary.

Bt1—17 to 23 inches; pale brown (10YR 6/4) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many fine tubular pores; few faint clay films; moderately alkaline (pH 7.6); clear wavy boundary.

Bt2—23 to 38 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many fine tubular pores; few faint clay films; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—38 to 48 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine tubular pores; slightly effervescent, fine rounded filaments of segregated calcium carbonate; 5 percent fine gravel; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bk2—48 to 60 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many fine tubular pores; violently effervescent, fine irregularly shaped seams and rounded filaments of segregated calcium carbonate; 10 percent gravel; strongly alkaline (pH 8.6).

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—20 to 35 percent

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bt horizon

Value—5 to 7 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam or silty clay loam

Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam, loam, or sandy loam

Calcium carbonate equivalent—5 to 15 percent

Reaction—moderately alkaline or strongly alkaline

Camaspatch Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 15 to 45 percent

Elevation: 1,900 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Camaspatch very cobbly silt loam on a 15-percent, south-facing slope at an elevation of 3,600 feet; about 800 feet south and 2,400 feet west of the northeast corner of sec. 7, T. 6 N., R. 20 E.; latitude 46 degrees 1 minute 34 seconds north and longitude 120 degrees 21 minutes 11 seconds west.

A—0 to 4 inches; dark brown (10YR 4/3) very cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine irregular pores; 30 percent gravel and 20 percent cobbles; slightly acid (pH 6.4); abrupt smooth boundary.

Bt1—4 to 7 inches; dark brown (10YR 3/3) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine and common fine roots; common fine tubular pores; few faint clay films lining pores; 35 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

Bt2—7 to 11 inches; dark brown (10YR 3/3) very gravelly clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure; very hard, firm, moderately sticky and moderately plastic; common fine roots; few fine tubular pores; many prominent clay films on faces of peds and in pores; 40 percent gravel; neutral (pH 6.6); clear wavy boundary.

Bt3—11 to 15 inches; dark yellowish brown (10YR 4/4) extremely gravelly clay, dark brown (10YR 3/2) moist; moderate medium prismatic structure parting to subangular blocky; very hard, firm, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; many prominent clay films on faces of peds and in pores; 65 percent gravel; neutral (pH 6.8); abrupt irregular boundary.

R—15 to 19 inches; fractured basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—12 to 20 inches

Characteristics of particle-size control section—averages 35 to 50 percent clay and 35 to 80 percent rock fragments

A horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist
Reaction—neutral or slightly acid

Bt horizon

Hue—10YR or 7.5YR
Value—3 to 5 dry, 2 or 3 moist
Chroma—2 to 4 dry or moist
Texture—very gravelly clay loam or very gravelly silty clay loam in the upper part and very gravelly clay, extremely gravelly clay, or very gravelly silty clay in the lower part
Reaction—neutral or slightly acid

Cauley Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Scoured floodwater terraces and hillslopes

Parent material: Floodwater alluvium mixed with loess

Slope range: 5 to 65 percent

Elevation: 100 to 600 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 inches

Frost-free period: 100 to 140 days

Typical pedon of Cauley silt loam on a 32-percent, west-facing slope at an elevation of 300 feet, about 500 feet north and 1,125 feet west of the southeast corner of sec. 34, T. 3 N., R. 12 E.; latitude 45 degrees 41 minutes 55 seconds north and longitude 121 degrees 17 minutes 0 seconds west.

- A1—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many fine tubular pores; 5 percent gravel; neutral (pH 6.5); abrupt smooth boundary.
- A2—5 to 15 inches; dark brown (10YR 3/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium and coarse roots; many fine tubular pores; 10 percent gravel; neutral (pH 6.6); clear smooth boundary.
- Bw1—15 to 33 inches; yellowish brown (10YR 5/4) gravelly silt loam, dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine and medium roots; common fine tubular pores; 20 percent gravel; moderately acid (pH 5.8); clear smooth boundary.
- Bw2—33 to 42 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; 10 percent gravel; moderately acid (pH 5.8); clear smooth boundary.
- Bw3—42 to 60 inches; yellowish brown (10YR 5/4) gravelly silt loam, dark yellowish brown (10YR 3/4) moist; weak coarse and very coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium and coarse and few very fine and fine roots; common fine tubular pores; 20 percent gravel and 5 percent cobbles; moderately acid (pH 5.8).

Range in Characteristics

Thickness of mollic epipedon—10 to 16 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 27 percent clay and 10 to 25 percent rock fragments

A horizon

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly acid

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—silt loam or gravelly silt loam

Reaction—slightly acid or moderately acid

Chemawa Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces and hillslopes

Parent material: Volcanic ash

Slope range: 2 to 45 percent

Elevation: 500 to 2,200 feet

Mean annual precipitation: 45 to 65 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 160 days

Typical pedon of Chemawa ashy loam on a 7-percent, southeast-facing slope at an elevation of 1,440 feet; about 900 feet north and 1,200 feet east of the southwest corner of sec. 13, T. 5 N., R. 10 E.; latitude 45 degrees 55 minutes 6 seconds north and longitude 121 degrees 52 minutes 36 seconds west.

Oi—1 inch to 0; slightly decomposed needles, leaves, and twigs.

Ac1—0 to 6 inches; brown (10YR 5/3) ashy loam, dark brown (7.5YR 3/3) moist; weak very fine granular structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; many very fine irregular pores; 10 percent shotlike aggregates that are 2 to 4 millimeters in size; slightly acid (pH 6.4); clear smooth boundary.

Ac2—6 to 14 inches; yellowish brown (10YR 5/3) ashy loam, dark brown (7.5YR 3/3) moist; weak very fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; many very fine irregular and common very fine tubular pores; 10 percent shotlike aggregates that are 2 to 4 millimeters in size; slightly acid (pH 6.4); clear smooth boundary.

Bw1—14 to 26 inches; yellowish brown (10YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak very fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; many very fine irregular and few very fine tubular pores; neutral (pH 6.6); clear smooth boundary.

Bw2—26 to 40 inches; light yellowish brown (10YR 6/4) ashy silt loam, brown (7.5YR 4/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine

and few medium roots; common very fine irregular and few very fine tubular pores; neutral (pH 6.9); clear smooth boundary.

BC—40 to 60 inches; light yellowish brown (10YR 6/4) ashy silt loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and few medium roots; common very fine irregular and few very fine tubular pores; neutral (pH 6.9).

Range in Characteristics

Thickness of umbric epipedon—10 to 14 inches

Thickness of volcanic ash influence—more than 40 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—10 to 18 percent clay and 0 to 25 percent rock fragments

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Texture—ashy loam or gravelly ashy loam

Content of rock fragments—0 to 20 percent gravel

Reaction—neutral or slightly acid

Bw and BC horizons

Hue—5YR to 10YR

Value—5 or 6 dry, 3 to 5 moist

Chroma—4 to 6 dry or moist

Texture—ashy loam, ashy silt loam, or gravelly ashy loam

Content of rock fragments—0 to 20 percent gravel

Reaction—neutral to moderately acid

Cheviot Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides and hillslopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 90 percent

Elevation: 250 to 2,700 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 170 days

Typical pedon of Cheviot very stony silt loam on a 50-percent, west-facing slope at an elevation of 1,700 feet; about 900 feet south and 2,500 feet east of the northwest corner of sec. 20, T. 4 N., R. 21 E.; latitude 45 degrees 48 minutes 58 seconds north and longitude 120 degrees 12 minutes 58 seconds west.

A1—0 to 7 inches; dark brown (10YR 4/3) very stony silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; 10 percent gravel, 20 percent cobbles, and 10 percent stones; neutral (pH 6.6); clear wavy boundary.

A2—7 to 12 inches; brown (10YR 5/3) very gravelly silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular and common fine

tubular pores; 35 percent gravel and 5 percent cobbles; neutral (pH 7.0); gradual wavy boundary.

Bw1—12 to 22 inches; yellowish brown (10YR 5/4) very gravelly silt loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 35 percent gravel and 5 percent cobbles; neutral (pH 7.2); abrupt wavy boundary.

Bw2—22 to 40 inches; yellowish brown (10YR 5/4) very gravelly silt loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; 35 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.4); gradual wavy boundary.

BC—40 to 60 inches; yellowish brown (10YR 5/4) extremely cobbly silt loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; 40 percent gravel and 30 percent cobbles; slightly alkaline (pH 7.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 25 percent clay and 35 to 70 percent rock fragments

A1 horizon

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—very stony silt loam

Reaction—neutral or slightly alkaline

A2 horizon

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—very gravelly silt loam or very cobbly silt loam

Reaction—neutral or slightly alkaline

Bw horizon

Chroma—3 or 4 dry or moist

Texture—very cobbly loam, very cobbly silt loam, or very gravelly silt loam

Reaction—neutral or slightly alkaline

BC horizon, and B_{ck} horizon, where present

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—extremely cobbly silt loam, extremely cobbly loam, or very cobbly loam

Calcium carbonate equivalent—0 to 3 percent

Reaction—neutral or slightly alkaline

Cleman Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Alluvial fans and flood plains

Parent material: Alluvium

Slope range: 2 to 5 percent

Elevation: 600 to 1,400 feet

Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 135 to 150 days

Typical pedon of Cleman very fine sandy loam on a 2-percent slope at an elevation of 900 feet; about 750 feet south and 1,450 feet east of the northwest corner of sec. 28, T. 6 N., R. 23 E.; latitude 45 degrees 58 minutes 49 seconds north and longitude 119 degrees 56 minutes 40 seconds west.

A1—0 to 2 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.

A2—2 to 10 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.

C1—10 to 19 inches; pale brown (10YR 6/3), stratified very fine sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, firm, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.

C2—19 to 43 inches; pale brown (10YR 6/3), stratified fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common fine irregular pores; 5 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.

C3—43 to 51 inches; pale brown (10YR 6/3), stratified sandy loam, dark brown (10YR 4/3) moist; massive; soft, friable, nonsticky and nonplastic; few very fine and fine roots; common fine irregular pores; 10 percent gravel; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

C4—51 to 60 inches; pale brown (10YR 6/3), stratified very gravelly sandy loam, dark brown (10YR 4/3) moist; massive; soft, friable, nonsticky and nonplastic; few very fine roots; few fine irregular pores; 40 percent gravel; coatings of calcium carbonate on gravel; violently effervescent; strongly alkaline (pH 8.6).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—5 to 10 percent clay and 0 to 5 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

C horizon

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—stratified silt loam to loamy fine sand to a depth of 40 inches and silt loam to very gravelly sand below

Calcium carbonate equivalent—1 to 5 percent

Reaction—neutral to moderately alkaline

Colockum Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides and hillslopes

Parent material: Loess over mixed slope alluvium and colluvium derived from basalt

Slope range: 5 to 60 percent

Elevation: 300 to 2,500 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 165 days

Typical pedon of Colockum silt loam on a 25-percent, east-facing slope at an elevation of 1,100 feet; about 1,710 feet south and 2,500 feet west of the northeast corner of sec. 8, T. 3 N., R. 19 E.; latitude 45 degrees 45 minutes 39 seconds north and longitude 120 degrees 27 minutes 28 seconds west.

A1—0 to 10 inches; dark brown (10YR 4/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.

A2—10 to 20 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; weak medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Bt—20 to 34 inches; brown (10YR 5/3) silt loam, brown to dark brown (10YR 4/3) moist; moderate fine and medium prismatic structure; hard, firm, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; few faint clay films lining tubular pores; 2 percent basalt gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Btk1—34 to 46 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 4/3) moist; strong medium prismatic structure; very hard, very firm, moderately sticky and moderately plastic; many very fine tubular pores; few faint and very faint clay bridges between mineral grains and few faint clay films lining pores and on faces of peds; 5 percent basalt gravel; disseminated calcium carbonate; strongly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.

2Btk2—46 to 60 inches; pale brown (10YR 6/3) gravelly silty clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; many very fine tubular pores; few faint and very faint clay bridges between mineral grains and few faint clay films lining pores and on surfaces of peds; 20 percent basalt gravel; disseminated calcium carbonate; strongly effervescent; slightly alkaline (pH 7.8).

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—22 to 35 percent clay and 5 to 30 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Reaction—neutral or slightly alkaline

Bt horizon

Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 6 dry or moist
Texture—silt loam or silty clay loam
Reaction—neutral or slightly alkaline

Btk horizon

Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—silty clay loam, silt loam, or gravelly loam
Calcium carbonate equivalent—1 to 5 percent
Reaction—slightly alkaline or moderately alkaline

2Btk horizon

Hue—7.5YR or 10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 to 6 dry or moist
Texture—gravelly silty clay loam, very gravelly clay loam, or very gravelly silty clay loam
Calcium carbonate equivalent—15 to 35 percent
Reaction—slightly alkaline or moderately alkaline

Dalig Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes and benches

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 65 percent

Elevation: 100 to 3,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Typical pedon of Dalig loam on an 11-percent, southwest-facing backslope at an elevation of 2,280 feet; about 1,500 feet north and 1,500 feet east of the southwest corner of sec. 35, T. 6 N., R. 13 E.; latitude 45 degrees 57 minutes 44 seconds north and longitude 121 degrees 9 minutes 6 seconds west.

Oi—2 inches to 1 inch; slightly decomposed needles, leaves, and twigs.

Oe—1 inch to 0; moderately decomposed organic material.

A—0 to 4 inches; reddish brown (5YR 5/3) loam, dark reddish brown (5YR 3/3) moist; weak fine and very fine granular structure; soft, friable, slightly sticky and nonplastic; many very fine and common fine roots; many very fine irregular pores; 10 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

BA—4 to 15 inches; light brown (7.5YR 6/4) loam, dark reddish brown (5YR 3/3) moist; weak fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine and few medium roots; many very fine irregular and tubular pores; 3 percent gravel; slightly acid (pH 6.2); gradual smooth boundary.

Bt1—15 to 29 inches; light brown (7.5YR 6/4) clay loam, dark brown (7.5YR 4/4) moist; weak fine and very fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and few fine and medium roots; many very fine irregular and common fine and very fine tubular pores; few faint

clay films on faces of peds and in pores; 3 percent gravel; slightly acid (pH 6.2); gradual smooth boundary.

Bt2—29 to 50 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 4/4) moist; moderate fine and very fine subangular blocky structure; hard, firm, sticky and very plastic; few fine roots; many very fine irregular and common fine tubular pores; few distinct clay films on faces of peds and in pores; 5 percent gravel; moderately acid (pH 6.0); gradual smooth boundary.

BCt—50 to 60 inches; brown (7.5YR 5/4) paragravelly clay loam, dark brown (7.5YR 4/4) moist; weak fine and very fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine irregular pores; few faint clay films on faces of peds and in pores; 20 percent paragravel; moderately acid (pH 6.0).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—25 to 35 percent clay, 0 to 10 percent gravel, and 0 to 15 percent paragravel

A horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry

Chroma—2 or 3 dry or moist

BA horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 dry, 3 or 4 moist

Bt horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Texture—loam or clay loam

Reaction—slightly acid or moderately acid

BCt horizon

Hue—5YR to 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Texture—loam, clay loam, paragravelly clay loam, or gravelly clay loam

Reaction—slightly acid or moderately acid

Dallesport Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Position on landscape: Terraces and terrace escarpments

Parent material: Eolian deposits over old sandy and gravelly alluvium

Slope range: 0 to 30 percent

Elevation: 150 to 900 feet

Mean annual precipitation: 10 to 15 inches

Mean annual air temperature: 52 to 54 degrees F

Frost-free period: 130 to 150 days

Typical pedon of Dallesport very cobbly fine sandy loam on a 10-percent, south-facing slope at an elevation of 320 feet, about 1,000 feet south and 700 feet west of the northeast corner of sec. 22, T. 2 N., R. 13 E.; latitude 45 degrees 38 minutes 51 seconds north and longitude 121 degrees 9 minutes 28 seconds west.

- Ap—0 to 3 inches; dark brown (10YR 4/3) very cobbly fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common very fine and fine tubular and few fine irregular pores; 15 percent gravel, 20 percent cobbles, and 3 percent stones; neutral (pH 6.6); abrupt smooth boundary.
- A—3 to 11 inches; dark brown (10YR 4/3) cobbly fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and few medium roots; common very fine and fine tubular and common fine irregular pores; 15 percent gravel and 10 percent cobbles; neutral (pH 7.0); clear wavy boundary.
- Bw—11 to 19 inches; dark yellowish brown (10YR 4/4) sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular and few fine irregular pores; 5 percent gravel; neutral (pH 7.0); clear wavy boundary.
- 2BC—19 to 24 inches; yellowish brown (10YR 5/4) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine irregular and few fine tubular pores; 45 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
- 3C1—24 to 45 inches; multicolored extremely gravelly coarse sand; single grain; loose; few fine and medium roots; many fine irregular pores; 60 percent gravel and 15 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.
- 3C2—45 to 60 inches; multicolored extremely gravelly coarse sand; single grain; loose; many fine irregular pores; 60 percent gravel and 15 percent cobbles; neutral (pH 7.2).

Range in Characteristics

Thickness of mollic epipedon—10 to 16 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—averages 2 to 8 percent clay and 35 to 60 percent rock fragments

One to twenty percent of the surface is covered with stones in some areas.

Ap and A horizons

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—gravelly fine sandy loam or very cobbly fine sandy loam

Bw horizon, and 2Bw horizon, where present

Hue—7.5YR or 10YR

Value—4 to 6 dry, 2 to 4 moist

Chroma—2 to 4 dry or moist

Texture—sandy loam, gravelly fine sandy loam, or fine sandy loam

Reaction—neutral or slightly alkaline

2BC horizon

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Reaction—neutral or slightly alkaline

3C horizon

Value—multicolored; 6 to 8 dry, 5 to 7 moist

Chroma—multicolored; 1 to 3 dry or moist

Texture—extremely gravelly coarse sand, very gravelly coarse sand, very cobbly coarse sand, or extremely cobbly coarse sand
 Reaction—neutral to moderately alkaline

Dillcourt Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Elevation: 200 to 4,100 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Typical pedon of Dillcourt very cobbly loam on a 55-percent, southwest-facing slope at an elevation of 1,200 feet, about 1,600 feet north and 100 feet west of the southeast corner of sec. 31, T. 5 N., R. 14 E.; latitude 45 degrees 52 minutes 28 seconds north and longitude 121 degrees 5 minutes 36 seconds west.

- A1—0 to 12 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; 1 percent stones on the surface, 15 percent gravel, and 30 percent cobbles; slightly acid (pH 6.2); gradual wavy boundary.
- A2—12 to 22 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many fine and medium irregular pores; 30 percent gravel and 10 percent cobbles; moderately acid (pH 6.0); gradual wavy boundary.
- Bt1—22 to 37 inches; yellowish brown (10YR 5/4) very cobbly loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine and medium tubular pores; common distinct clay films on faces of peds and in pores; 15 percent gravel and 35 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.
- Bt2—37 to 60 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and moderately plastic; common very fine roots; common fine tubular pores; many distinct clay films on faces of peds and in pores; 20 percent gravel and 30 percent cobbles; moderately acid (pH 5.8).

Range in Characteristics

Thickness of mollic epipedon—20 to 26 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 35 percent clay and 35 to 65 percent rock fragments

A horizon

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly loam

Reaction—slightly acid or moderately acid

Bt horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—very cobbly silt loam, very cobbly loam, or very cobbly clay loam

Reaction—slightly acid or moderately acid

Dystroxerepts

Depth class: Shallow and moderately deep

Drainage class: Well drained

Position on landscape: Back slopes of mountains

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash

Slope range: 30 to 75 percent

Elevation: 600 to 4,000 feet

Mean annual precipitation: 55 to 65 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 80 to 90 days

Reference pedon of Dystroxerepts on a 52-percent, west-facing slope at an elevation of 3,000 feet, about 1,300 feet west of the southeast corner of sec. 4, T. 4 N., R. 10 E.; latitude 45 degrees 51 minutes 18 seconds north and longitude 120 degrees 33 minutes 14 seconds west.

A1—0 to 4 inches; dark brown (7.5YR 4/2) very cobbly ashy loam, dark brown (7.5YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and common fine roots; common fine irregular and few fine tubular pores; 30 percent gravel and 15 percent cobbles; slightly acid (pH 6.2); clear smooth boundary.

A2—4 to 10 inches; brown (7.5YR 5/3) extremely cobbly loam, dark brown (7.5YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine roots; common fine irregular and many very fine tubular pores; 40 percent gravel and 30 percent cobbles; moderately acid (pH 5.8); clear irregular boundary.

Bw—10 to 20 inches; light brown (7.5YR 6/4) extremely cobbly loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; common fine irregular and many very fine tubular pores; 30 percent gravel and 40 percent cobbles; moderately acid (pH 5.8); abrupt irregular boundary.

R—20 to 24 inches; basalt.

Range in Characteristics

Thickness of umbric epipedon—8 to 14 inches

Thickness of volcanic ash influence—4 to 40 inches

Depth to bedrock—10 to 40 inches

Characteristics of particle-size control section—15 to 20 percent clay and 50 to 70 percent rock fragments

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly ashy loam in the upper part and very cobbly loam, extremely cobbly ashy loam, or extremely cobbly loam in the lower part

Reaction—slightly acid or moderately acid

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 or 5 dry or moist

Texture—very stony loam, extremely cobbly loam, or extremely cobbly ashy loam

Reaction—slightly acid or moderately acid

Eagreek Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Dissected plateaus

Parent material: Colluvium and residuum derived from tuff, volcanic breccia, and dacite

Slope range: 15 to 50 percent

Elevation: 1,800 to 2,300 feet

Mean annual precipitation: 42 to 47 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 130 days

Typical pedon of Eagreek paragravelly loam on a 40-percent, northwest-facing slope at an elevation of 2,050 feet, about 1,000 feet north and 2,600 feet west of the southeast corner of sec. 14, T. 4 N., R. 11 E.; latitude 45 degrees 49 minutes 57 seconds north and longitude 121 degrees 23 minutes 24 seconds west.

Oi—2 inches to 1 inch; undecomposed and slightly decomposed forest litter of needles, leaves, and twigs.

Oe—1 inch to 0; moderately decomposed organic material.

A—0 to 6 inches; pinkish gray (7.5YR 6/2) paragravelly loam, dark brown (7.5YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; many medium and coarse irregular pores; 30 percent paragravel 2 to 5 millimeters in size; 5 percent cobbles; neutral (pH 6.6); clear smooth boundary.

AB—6 to 19 inches; light reddish brown (5YR 6/3) paragravelly loam, dark reddish brown (5YR 3/4) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and fine and common medium and coarse roots; many medium irregular pores; 25 percent paragravel 2 to 5 millimeters in size and 5 percent cobbles; slightly acid (pH 6.4); gradual wavy boundary.

Bw1—19 to 44 inches; pale red (10R 6/2) very paragravelly loam, reddish brown (2.5YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common fine and medium and few coarse roots; common fine and medium irregular and common fine tubular pores; 45 percent breccia paragravel; moderately acid (pH 5.6); gradual wavy boundary.

Bw2—44 to 60 inches; pale red (10R 6/2) very paragravelly loam, reddish brown (2.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 60 percent breccia paragravel; strongly acid (pH 5.2).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 27 percent clay, 30 to 75 percent tuff, breccia, or dacite paragravel, and 0 to 10 percent gravel

A horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Reaction—neutral or slightly acid

Bw horizon

Hue—10R or 2.5YR

Value—5 to 7 dry, 4 to 6 moist

Chroma—2 to 4 dry or moist

Texture—very paragravelly loam or extremely paragravelly loam

Reaction—moderately acid or strongly acid

Endicott Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Terraces

Parent material: Loess

Slope range: 2 to 15 percent

Elevation: 800 to 1,500 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 140 to 160 days

Typical pedon of Endicott silt loam on a 2-percent slope at an elevation of 1,030 feet, about 800 feet north and 1,250 feet west of the southeast corner of sec. 18, T. 3 N., R. 20 E.; latitude 45 degrees 44 minutes 16 seconds north and longitude 120 degrees 21 minutes 2 seconds west.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many fine irregular pores; neutral (pH 7.0); abrupt smooth boundary.

A—5 to 10 inches; dark brown (10YR 4/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common fine tubular pores; neutral (pH 7.2); clear wavy boundary.

Bw1—10 to 19 inches; dark brown (10YR 4/3) silt loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common fine tubular pores; neutral (pH 7.2); clear smooth boundary.

Bw2—19 to 26 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common fine tubular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bk—26 to 30 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; few very fine roots; few fine tubular pores; 30 percent rounded gravel; disseminated calcium carbonate; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.

2Bkqm—30 inches; indurated duripan cemented with calcium carbonate and silica.

Range in Characteristics

Thickness of mollic epipedon—10 to 19 inches

Depth to duripan—20 to 40 inches

Characteristics of particle-size control section—5 to 12 percent clay and 0 to 5 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—5 or 6 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Calcium carbonate equivalent—0 to 5 percent

Reaction—slightly alkaline or moderately alkaline

Esquatzel Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Flood plains

Parent material: Silty alluvium

Slope range: 0 to 5 percent

Elevation: 1,400 to 3,000 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 130 to 160 days

Typical pedon of Esquatzel silt loam on a 2-percent slope at an elevation of 1,400 feet, about 4 miles northwest of Buena; about 1,340 feet south and 400 feet east of the northwest corner of sec. 6, T. 11 N., R. 20 E.; latitude 4 degrees 29 minutes 6 seconds north and longitude 120 degrees 20 minutes 55 seconds west.

Ap1—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, friable, nonsticky and slightly plastic; many very fine roots; common fine tubular pores; neutral; abrupt smooth boundary.

Ap2—4 to 8 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; many very fine roots; common fine tubular pores; neutral; abrupt smooth boundary.

AB—8 to 17 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure; slightly hard, friable, slightly sticky and moderately plastic; common very fine roots; common fine tubular pores; neutral; gradual wavy boundary.

Bw1—17 to 22 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and moderately plastic; few very fine roots; common fine tubular pores; slightly alkaline; abrupt wavy boundary.

Bw2—22 to 46 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and moderately plastic; few very fine roots; common fine tubular pores; slightly alkaline; abrupt wavy boundary.

Bw3—46 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and moderately plastic; few very fine roots; common fine tubular pores; slightly alkaline.

Range in Characteristics

Thickness of mollic epipedon—15 to 20 inches

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—5 to 15 percent

Flooding—may occur in winter to early in spring

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

AB horizon

Value—5 or 6 dry

Chroma—2 to 4 dry or moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—silt loam or very fine sandy loam

Reaction—slightly alkaline or moderately alkaline

The Esquatzel soils in this survey area are a taxadjunct to the Esquatzel series because they do not have free calcium carbonate above a depth of 40 inches. This difference, however, does not affect the use and management of the soils.

Ewall Series

Depth class: Very deep

Drainage class: Excessively drained

Position on landscape: Terraces and terrace escarpments

Parent material: Eolian deposits

Slope range: 0 to 30 percent

Elevation: 100 to 800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Ewall loamy sand on a 1-percent slope at an elevation of 180 feet, about 1,250 feet south and 1,500 feet west of the northeast corner of sec. 33, T. 2 N., R. 13 E.; latitude 45 degrees 37 minutes 6 seconds north and longitude 121 degrees 10 minutes 55 seconds west.

A—0 to 7 inches; dark brown (10YR 4/3) loamy sand, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine irregular pores; neutral (pH 6.8); clear smooth boundary.

AC—7 to 14 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; single grain; loose; few fine roots; few fine irregular pores; neutral (pH 7.0); gradual wavy boundary.

C1—14 to 50 inches; yellowish brown (10YR 5/4) sand, dark brown (10YR 3/3) moist; single grain; loose; very few fine roots; few fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.

C2—50 to 60 inches; multicolored sand; single grain; loose; few fine irregular pores; 10 percent gravel; neutral (pH 7.2).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—0 to 5 percent clay and 0 to 10 percent rock fragments

A horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

AC horizon

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

C horizon

Hue—10YR or 2.5YR

Value—multicolored; 5 to 7 dry, 3 to 5 moist

Chroma—multicolored; 2 to 4 dry or moist

Texture—sand, loamy fine sand, or fine sand

Reaction—neutral or slightly alkaline

Fanal Series

Depth class: Very deep

Drainage class: Moderately well drained

Position on landscape: Toeslopes

Parent material: Slope alluvium and colluvium derived from basalt with an influence of volcanic ash in the upper part

Slope range: 2 to 8 percent

Elevation: 1,800 to 2,400 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 60 to 90 days

Typical pedon of Fanal ashy sandy loam on a 4-percent slope at an elevation of 1,840 feet, about 1,000 feet north and 2,000 feet west of the southeast corner of sec. 34, T. 6 N., R. 12 E.; latitude 45 degrees 57 minutes 36 seconds north and longitude 121 degrees 17 minutes 14 seconds west.

A1—0 to 4 inches; dark brown (10YR 4/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine irregular pores; 10 percent gravel; moderately acid (pH 6.0); clear smooth boundary.

A2—4 to 12 inches; dark brown (10YR 4/3) gravelly ashy sandy loam, dark brown (7.5YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular and few very fine tubular pores; 20 percent gravel; moderately acid (pH 6.0); clear smooth boundary.

Bw1—12 to 31 inches; dark brown (10YR 4/3) sandy loam, dark brown (7.5YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine

irregular and few very fine tubular pores; 10 percent gravel; slightly acid (pH 6.2); abrupt wavy boundary.

Bw2—31 to 44 inches; yellowish brown (10YR 5/4) sandy loam, dark brown (7.5YR 4/4) moist; few fine distinct redoximorphic concentrations that are brownish yellow (10YR 6/6), yellowish red (5YR 5/6) moist; weak very fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine irregular pores; 10 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

C—44 to 60 inches; light brown (7.5YR 6/4) sandy loam, dark brown (7.5YR 3/4) moist; common fine distinct redoximorphic concentrations that are reddish yellow (5YR 6/6), yellowish red (5YR 5/6) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and fine irregular pores; 10 percent gravel; neutral (pH 6.6).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Thickness of volcanic ash influence—0 to 12 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—10 to 18 percent clay and 5 to 15 percent rock fragments

Redoximorphic concentrations—present between depths of 30 and 40 inches

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry

Chroma—2 or 3 moist

Texture—ashy sandy loam in the upper part and ashy loam or gravelly ashy sandy loam in the lower part

Reaction—slightly acid or moderately acid

Bw horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—sandy loam, loam, or gravelly sandy loam

C horizon

Hue—7.5YR or 10YR

Value—4 to 7 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—sandy loam, loam, or sandy clay loam

Reaction—neutral or slightly acid

Firoke Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Colluvium derived from basalt mixed with volcanic ash

Slope range: 5 to 40 percent

Elevation: 1,800 to 4,200 feet

Mean annual precipitation: 40 to 55 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 70 to 95 days

Typical pedon of Firoke ashy fine sandy loam on a 12-percent, southwest-facing

backslope at an elevation of 3,120 feet, about 800 feet north and 2,500 feet east of the southwest corner of sec. 15, T. 6 N., R. 11 E.; latitude 46 degrees 0 minutes 20 seconds north and longitude 121 degrees 25 minutes 0 seconds west.

- A—0 to 6 inches; brown (10YR 4/3) ashy fine sandy loam, dark brown (7.5YR 3/2) crushed and moist; weak very fine granular structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and common coarse roots throughout; many very fine and fine irregular pores; 12 percent gravel; slightly acid (pH 6.2); clear smooth boundary.
- AB—6 to 19 inches; yellowish brown (10YR 5/4) gravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and common coarse roots throughout; many very fine and fine irregular pores; 20 percent gravel; slightly acid (pH 6.2); clear smooth boundary.
- Bw1—19 to 28 inches; yellowish brown (10YR 5/4) very cobbly ashy sandy loam, brown (7.5YR 5/4) moist; weak fine subangular blocky structure parting to weak very fine subangular blocky; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and few coarse roots throughout; many very fine irregular and common fine tubular pores; 20 percent gravel and 15 percent cobbles; slightly acid (pH 6.4); clear smooth boundary.
- Bw2—28 to 34 inches; light yellowish brown (10YR 6/4) extremely cobbly ashy sandy loam, dark brown (7.5YR 3/4) moist; weak very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and few fine roots throughout; many very fine and fine irregular pores; 40 percent gravel and 25 percent cobbles; slightly acid (pH 6.4); gradual smooth boundary.
- Bw3—34 to 44 inches; light yellowish brown (10YR 6/4) extremely stony ashy loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; common very fine and few fine roots throughout; common very fine and fine irregular pores; 30 percent gravel, 10 percent cobbles, and 30 percent stones; slightly acid (pH 6.4); gradual smooth boundary.
- Bw4—44 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly ashy loam, dark yellowish brown (10YR 4/4) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; common very fine and few fine roots throughout; common very fine irregular pores; 55 percent gravel, 15 percent cobbles, and 5 percent stones from ejecta; slightly acid (pH 6.4).

Range in Characteristics

Thickness of umbric epipedon—10 to 20 inches

Thickness of volcanic ash influence—more than 40 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—2 to 10 percent clay (average) and 35 to 45 percent rock fragments

Percentage of surface covered with stones—0.01 to 0.1 percent

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry

Chroma—3 or 4 dry, 2 or 3 moist

Reaction—slightly acid or moderately acid

AB horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 moist

Texture—gravelly ashy loam, cobbly ashy sandy loam, or gravelly ashy fine sandy loam

Reaction—slightly acid or moderately acid

Bw horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Texture—very cobbly ashy sandy loam, extremely cobbly ashy sandy loam, extremely stony ashy loam, extremely gravelly ashy loam, or very gravelly ashy loam

Reaction—slightly alkaline or moderately alkaline

Fisherhill Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Loess and slope alluvium

Slope range: 2 to 65 percent

Elevation: 500 to 2,800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 170 days

Typical pedon of Fisherhill silt loam on a 21-percent, south-facing slope at an elevation of 1,000 feet, about 940 feet north and 1,750 feet west of the southeast corner of sec. 9, T. 2 N., R. 13 E.; latitude 45 degrees 40 minutes 5 seconds north and longitude 121 degrees 10 minutes 56 seconds west.

- A1—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; common fine irregular and tubular pores; neutral (pH 6.8); clear smooth boundary.
- A2—4 to 9 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure and weak very fine and fine granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and fine tubular pores; slightly acid (pH 6.4); clear smooth boundary.
- Bt1—9 to 14 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine and common fine and medium roots; common fine tubular pores; few faint clay films on faces of pedes masked by organic matter; slightly acid (pH 6.4); clear wavy boundary.
- Bt2—14 to 20 inches; yellowish brown (10YR 5/6) silty clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium and coarse subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; common very fine and fine roots; common fine tubular pores; common distinct clay films on faces of pedes and lining pores; slightly acid (pH 6.2); clear wavy boundary.
- Bt3—20 to 32 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium and coarse subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; common fine tubular pores; common distinct clay films on faces of pedes and lining pores; slightly acid (pH 6.2); clear wavy boundary.
- Bt4—32 to 60 inches; yellowish brown (10YR 5/6) silty clay loam, dark yellowish brown (10YR 3/6) moist; moderate medium and coarse subangular blocky

structure; very hard, very firm, moderately sticky and moderately plastic; common fine tubular pores; many faint clay films on faces of peds and lining pores; neutral (pH 6.8).

Range in Characteristics

Thickness of mollic epipedon—12 to 20 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—25 to 35 percent clay and 0 to 5 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 to 4 dry, 1 to 3 moist

Reaction—neutral or slightly acid

Bt horizon

Value—5 or 6 dry, 3 to 5 moist

Chroma—3 to 6 dry or moist

Texture—silt loam, silty clay loam, or clay loam

Reaction—neutral or slightly acid

Flotag Series

Depth class: Very deep

Drainage class: Moderately well drained

Position on landscape: Low terraces

Parent material: Mudflow deposits derived from mixed volcanic ash and basaltic and andesitic sand and gravel

Slope range: 0 to 2 percent

Elevation: 1,600 to 2,000 feet

Mean annual precipitation: 47 to 53 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 90 to 110 days

Typical pedon of Flotag gravelly ashy sandy loam on a 1-percent slope at an elevation of 1,900 feet, about 100 feet north and 1,700 feet east of the southwest corner of sec. 14, T. 6 N., R. 10 E.; latitude 46 degrees 0 minutes 3 seconds north and longitude 121 degrees 31 minutes 14 seconds west.

Ap—0 to 8 inches; grayish brown (10YR 5/2) gravelly ashy sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many fine and very fine roots; many fine irregular pores; 20 percent gravel; moderately acid (pH 5.8); clear smooth boundary.

Bw—8 to 19 inches; grayish brown (10YR 5/2) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and common fine roots; many fine irregular and common fine tubular pores; 30 percent gravel and 3 percent cobbles; moderately acid (pH 6.0); clear smooth boundary.

C1—19 to 34 inches; light brownish gray (10YR 6/2) gravelly ashy sandy loam, dark grayish brown (10YR 4/2) moist; few fine prominent redoximorphic concentrations that are yellowish brown (10YR 5/8), yellowish brown (10YR 5/6) moist; massive; slightly hard, friable, nonsticky and nonplastic; common fine and very fine roots; common fine irregular and tubular pores; 25 percent gravel and 5 percent cobbles; moderately acid (pH 6.0); abrupt smooth boundary.

2Ab—34 to 41 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, friable, slightly

sticky and nonplastic; weakly smeary; common very fine roots; many fine irregular and common very fine tubular pores; 15 percent gravel; moderately acid (pH 6.0); clear smooth boundary.

2Bwb—41 to 56 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; weakly smeary; common very fine roots; many very fine irregular and few fine tubular pores; 20 percent gravel; moderately acid (pH 6.0); abrupt smooth boundary.

2C2—56 to 60 inches; pink (7.5YR 7/4) gravelly sandy loam, brown (7.5YR 4/4) moist; few fine distinct redoximorphic concentrations that are reddish yellow (7.5YR 6/8), strong brown (7.5YR 5/8) moist; massive; hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine irregular pores; 35 percent gravel; strongly acid (pH 5.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Thickness of volcanic ash influence—0 to 34 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—5 to 15 percent clay and 5 to 35 percent rock fragments

Water table—may be present in spring and early in summer

A horizon

Value—2 or 3 moist

Chroma—2 or 3 dry

Bw horizon

Chroma—2 to 4 dry, 2 or 3 moist

Texture—gravelly ashy loamy sand, gravelly ashy sandy loam, or ashy sandy loam

C1 horizon

Value—5 or 6 dry

Chroma—2 to 4 dry, 2 or 3 moist

Texture—gravelly ashy loamy sand, gravelly ashy sandy loam, or ashy sandy loam

2Ab horizon

Chroma—2 or 3 dry

2Bwb horizon

Value—5 or 6 dry

Chroma—3 or 4 dry, 2 to 4 moist

Texture—gravelly loam or gravelly sandy loam

2C2 horizon

Hue—7.5YR or 10YR

Texture—gravelly loam or gravelly sandy loam

Reaction—moderately acid or strongly acid

Fluvaquentic Endoaquolls

Depth class: Very deep

Drainage class: Poorly drained

Position on landscape: Flood plains

Parent material: Alluvium

Slope range: 0 to 2 percent

Elevation: 1,300 to 3,800 feet

Mean annual precipitation: 50 to 55 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 95 to 105 days

Reference pedon of Fluvaquentic Endoaquolls on a 1-percent slope at an elevation of 1,960 feet, about 2,300 feet north and 50 feet east of the southwest corner sec. 9, T. 6 N., R. 10 E.; latitude 46 degrees 1 minute 10 seconds north and longitude 121 degrees 34 minutes 6 seconds west.

- A1—0 to 6 inches; dark gray (10YR 4/1) loam, black (10YR 2/1) moist; common medium distinct redoximorphic concentrations that are dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular and common fine tubular pores; moderately acid (pH 6.0); clear smooth boundary.
- A2—6 to 13 inches; dark gray (10YR 4/1) loam, very dark gray (10YR 3/1) moist; common medium distinct redoximorphic concentrations that are dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine tubular pores; slightly acid (pH 6.2); clear smooth boundary.
- A3—13 to 20 inches; gray (10YR 5/1) loam, very dark gray (10YR 3/1) moist; common medium distinct redoximorphic concentrations that are dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine tubular pores; slightly acid (pH 6.2); clear smooth boundary.
- Bw1—20 to 25 inches; light gray (10YR 6/1) sandy loam, dark gray (10YR 4/1) moist; few coarse distinct redoximorphic concentrations that are dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; slightly acid (pH 6.4); clear smooth boundary.
- Bw2—25 to 30 inches; dark brown (7.5YR 4/4) gravelly sandy loam, dark brown (7.5YR 3/4) moist; common medium prominent redoximorphic concentrations that are dark gray (10YR 4/1) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; 20 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.
- 2C1—30 to 45 inches; grayish brown (10YR 5/2) very paragravelly loamy sand, very dark grayish brown (10YR 3/2) moist; many coarse prominent redoximorphic concentrations that are yellowish red (5YR 4/6) moist; single grain; loose; few very fine roots; many fine irregular pores; 55 percent pumice fragments that are 2 to 5 millimeters in size; moderately acid (pH 6.0); abrupt wavy boundary.
- 3C2—45 to 60 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; many medium prominent redoximorphic concentrations that are yellowish red (5YR 4/6) moist; massive; slightly hard, friable, nonsticky and nonplastic; common fine tubular pores; 20 percent gravel; slightly acid (pH 6.2).

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—0 to 20 percent clay, 15 to 65 percent gravel, and 0 to 60 percent paragravel

Water table—may be present any time of the year

Flooding—may occur in winter to early in summer

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Reaction—slightly acid or moderately acid

Bw horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—1 to 4 dry or moist

Texture—sandy loam, loam, or gravelly sandy loam

Reaction—slightly acid or moderately acid

2C and 3C horizons

Value—5 or 6 dry, 3 or 4 moist

Chroma—1 to 3 dry or moist

Texture—stratified extremely gravelly loam to very paragravelly loamy sand

Reaction—slightly acid or moderately acid

Fluvaquents

Depth class: Very deep

Drainage class: Poorly drained

Position on landscape: Flood plains

Parent material: Alluvium

Slope range: 0 to 2 percent

Elevation: 250 to 1,500 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 150 to 180 days

Reference pedon of Fluvaquents on a 1-percent slope at an elevation of 640 feet, about 430 feet south and 2,175 feet west of the northeast corner of sec. 6, T. 4 N., R. 23 E.; latitude 45 degrees 50 minutes 53 seconds north and longitude 119 degrees 58 minutes 44 seconds west.

A—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; few fine distinct redoximorphic concentrations that are dark reddish brown (5YR 3/4) moist; weak thin platy structure parting to weak fine granular; slightly hard, friable, nonsticky and slightly plastic; many very fine and fine roots; few medium irregular pores; moderately alkaline (pH 8.0); clear smooth boundary.

Cg1—6 to 13 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; many medium prominent redoximorphic concentrations that are dark reddish brown (2.5YR 3/4), yellowish brown (10YR 5/6) dry; massive; hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; few fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Cg2—13 to 20 inches; very dark gray (10YR 3/1) loam, light brownish gray (10YR 6/2) dry; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; few fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Cg3—20 to 32 inches; very dark gray (10YR 3/1) silt loam, light brownish gray (10YR 6/2) dry; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; slightly alkaline (pH 7.4); abrupt irregular boundary.

2Cg4—32 to 60 inches; black (10YR 2/1) gravelly sand, grayish brown (10YR 5/2)

dry; single grain; loose, nonsticky and nonplastic; few very fine and fine roots;
15 percent gravel; slightly alkaline (pH 7.6).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—10 to 35 percent clay and 0 to 20 percent gravel

Water table—may be present any time of the year

Flooding—may occur in winter to early in spring

A horizon

Value—4 to 6 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Reaction—neutral to moderately alkaline

Cg horizon

Value—5 or 6 dry

Chroma—1 or 2 dry or moist

Texture—silt loam, loam, or clay loam

Reaction—neutral or slightly alkaline

2Cg horizon

Value—5 or 6 dry, 1 to 3 moist

Chroma—1 to 3 dry or moist

Texture—sand or gravelly sand

Reaction—neutral or slightly alkaline

Fluventic Haploxerolls

Depth class: Very deep

Drainage class: Somewhat excessively drained or well drained

Position on landscape: Flood plains

Parent material: Alluvium

Slope range: 0 to 5 percent

Elevation: 150 to 2,100 feet

Mean annual precipitation: 20 to 30 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 120 days

Reference pedon of Fluventic Haploxerolls on a 2-percent slope at an elevation of 800 feet, about 1,200 feet south of the northwest corner of sec. 18, T. 5 N., R. 14 E.; latitude 45 degrees 55 minutes 25 seconds north and longitude 121 degrees 6 minutes 48 seconds west.

A1—0 to 12 inches; brown (7.5YR 5/2) sandy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; many fine irregular pores; neutral (pH 6.6); abrupt smooth boundary.

A2—12 to 26 inches; brown (7.5YR 5/2) very gravelly loamy sand, dark reddish brown (5YR 3/2) moist; single grain; loose, nonsticky and nonplastic; many very fine, fine, and medium roots; many fine and medium irregular pores; 55 percent gravel; neutral (pH 6.8); clear smooth boundary.

C1—26 to 40 inches; reddish gray (5YR 5/2) sandy loam, dark reddish brown (5YR 3/2) moist; single grain; soft, very friable, nonsticky and nonplastic; few fine roots; many fine irregular pores; 10 percent gravel; neutral (pH 6.6); clear smooth boundary.

C2—40 to 60 inches; reddish gray (5YR 5/2) gravelly sandy loam, dark reddish brown

(5YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; many fine and medium irregular pores; few distinct reddish brown (5YR 5/4) redoximorphic concentrations; 30 percent gravel; neutral (pH 6.6).

Range in Characteristics

Thickness of mollic epipedon—12 to 30 inches

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—10 to 60 inches

Characteristics of particle-size control section—0 to 10 percent clay and 0 to 55 percent rock fragments

Water table—may be present in winter to late in spring

Flooding—may occur in winter to early in summer

A horizon

Hue—10YR to 5YR

Value—4 or 5 dry, 2 or 3 moist

Texture—sandy loam, very gravelly loamy sand, or gravelly sandy loam

Reaction—neutral or slightly acid

C horizon

Hue—7.5YR or 5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—gravelly sandy loam, very gravelly sand, gravelly loamy sand, or sandy loam

Reaction—neutral or slightly alkaline

Galiente Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Structural benches and hillslopes

Parent material: Loess over old alluvium

Slope range: 2 to 65 percent

Elevation: 500 to 3,200 feet

Mean annual precipitation: 15 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Typical pedon of Galiente silt loam on a 21-percent, east-facing slope at an elevation of 720 feet, about 2,000 feet south and 375 feet west of the northeast corner of sec. 28, T. 3 N., R. 12 E.; latitude 45 degrees 43 minutes 8 seconds north and longitude 121 degrees 18 minutes 3 seconds west.

A—0 to 3 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine, medium, and coarse roots; common fine tubular pores; neutral (pH 6.6); clear smooth boundary.

Bt1—3 to 11 inches; brown (10YR 5/3) silt loam, dark yellowish brown (10YR 3/4) moist; moderate medium and coarse subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; common very fine, fine, medium, and coarse roots; common fine tubular pores; common distinct clay films on faces of peds and lining pores; moderately acid (pH 5.6); clear wavy boundary.

2Bt2—11 to 38 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/6) moist; strong coarse subangular blocky structure; extremely hard, extremely firm, very sticky and very plastic; common very and fine roots; common very fine

and fine tubular pores; many distinct clay films on faces of peds and lining pores; very strongly acid (pH 4.8); clear wavy boundary.

2Bt3—38 to 60 inches; brownish yellow (10YR 6/6) clay, dark yellowish brown (10YR 4/6) moist; strong coarse subangular blocky structure; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots; few fine tubular pores; common distinct clay films on faces of peds and lining pores; very strongly acid (pH 4.6).

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—more than 60 inches

Depth to abrupt textural change—10 to 20 inches

Content of clay in particle-size control section—35 to 55 percent

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—silt loam or loam

Reaction—neutral or slightly acid

Bt horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam or loam

Reaction—slightly acid or moderately acid

2Bt horizon

Value—4 to 6 dry, 3 to 5 moist

Chroma—4 or 6 dry or moist

Texture—clay or clay loam

Reaction—strongly acid or very strongly acid

Goldendale Series

Depth class: Deep and very deep

Drainage class: Well drained

Position on landscape: Plateaus, canyon side slopes, and hillslopes

Parent material: Loess mixed with slope alluvium, colluvium, and residuum derived from basalt and a minor amount of volcanic ash

Slope range: 0 to 65 percent

Elevation: 600 to 3,100 feet

Mean annual precipitation: 14 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Typical pedon of Goldendale silt loam on a 5-percent, southeast-facing slope at an elevation of 2,080 feet; about 50 feet north and 500 feet west of the southeast corner of sec. 18, T. 4 N., R. 17 E.; latitude 45 degrees 49 minutes 30 seconds north and longitude 120 degrees 43 minutes 12 seconds west.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular and tubular pores; moderately acid (pH 6.0); abrupt smooth boundary.

A—7 to 14 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; hard, friable, moderately sticky

and moderately plastic; many very fine and fine roots; many fine irregular and common very fine and fine tubular pores; slightly acid (pH 6.2); clear wavy boundary.

BA—14 to 20 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; moderate fine prismatic structure; very hard, firm, moderately sticky and moderately plastic; many very fine and fine roots; many fine tubular pores; faint patchy clay films; slightly acid (pH 6.4); clear wavy boundary.

Bt1—20 to 27 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; moderate fine prismatic structure; very hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; many fine tubular pores; faint patchy clay films; slightly acid (pH 6.4); gradual wavy boundary.

Bt2—27 to 43 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium prismatic structure; extremely hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; many fine tubular pores; continuous distinct clay films; slightly acid (pH 6.5); gradual wavy boundary.

Bt3—43 to 60 inches; brown (10YR 4/3) clay loam, dark yellowish brown (10YR 3/4) moist; weak subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; many fine tubular pores; continuous faint clay films; neutral (pH 6.6).

Range in Characteristics

Depth to bedrock—40 to 60 inches or more

Characteristics of particle-size control section—18 to 35 percent clay and 0 to 5 percent rock fragments

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—slightly acid or moderately acid

BA horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry

Chroma—2 to 4 dry or moist

Texture—silt loam or loam

Reaction—neutral or slightly acid

Bt horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 to 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam, silty clay loam, or clay loam

Reaction—neutral or slightly acid

Goodnoe Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 30 to 65 percent

Elevation: 300 to 2,800 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Typical pedon of Goodnoe very stony sandy loam on a 50-percent, southeast-facing slope at an elevation of 1,360 feet; about 1,800 feet west and 1,000 feet north of the southeast corner of sec. 31, T. 3 N., R. 16 E.; latitude 45 degrees 41 minutes 47 seconds north and longitude 120 degrees 50 minutes 58 seconds west.

A—0 to 6 inches; brown to dark brown (7.5YR 4/4) very stony sandy loam, dark brown (7.5YR 3/3) moist; moderate medium and fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine and few medium irregular pores; 15 percent gravel, 10 percent cobbles, and 10 percent stones; slightly acid (pH 6.5); clear wavy boundary.

ABt—6 to 12 inches; brown to dark brown (7.5YR 4/4) very gravelly loam, dark brown (7.5YR 3/3) moist; moderate fine and very fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many fine and common medium irregular pores; few faint clay films on faces of peds and in pores; 20 percent gravel, 10 percent cobbles, and 10 percent stones; moderately alkaline (pH 8.0); gradual smooth boundary.

Bt—12 to 22 inches; brown (7.5YR 5/4) very cobbly loam, brown to dark brown (7.5YR 4/4) moist; moderate medium and fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; many fine irregular and common tubular pores; common faint clay films on faces of peds and in pores; 25 percent gravel, 20 percent cobbles, and 10 percent stones; moderately alkaline (pH 8.0); clear wavy boundary.

BCt—22 to 29 inches; brown (7.5YR 5/4) extremely stony loam, brown (7.5YR 5/4) moist; weak medium and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few fine roots; few fine irregular and tubular pores; very few faint clay films on faces of peds; 25 percent gravel, 25 percent cobbles, and 25 percent stones; moderately alkaline (pH 8.0); abrupt irregular boundary.

R—29 to 33 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—7 to 14 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—18 to 27 percent clay and 35 to 75 percent rock fragments

A horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry

Chroma—2 to 4 dry, 2 or 3 moist

Reaction—slightly acid to slightly alkaline

ABt horizon

Hue—10YR or 7.5YR

Chroma—3 or 4 dry or moist

Texture—very gravelly loam or very stony loam

Calcium carbonate equivalent—0 to 2 percent

Reaction—slightly alkaline or moderately alkaline

Bt horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry or moist

Chroma—3 or 4 dry or moist

Texture—very cobbly loam, very gravelly loam, or extremely cobbly loam

Calcium carbonate equivalent—0 to 2 percent
 Reaction—slightly alkaline or moderately alkaline

BCt horizon

Hue—10YR or 7.5YR
 Value—4 or 5 dry or moist
 Chroma—3 or 4 dry or moist
 Texture—extremely stony loam, extremely gravelly loam, or very gravelly silt loam
 Calcium carbonate equivalent—0 to 2 percent
 Reaction—slightly alkaline or moderately alkaline

Grandpon Series

Depth class: Very deep
Drainage class: Well drained
Position on landscape: Mountain slopes
Parent material: Volcanic ash over colluvium derived from basalt
Slope range: 8 to 30 percent
Elevation: 3,700 to 5,000 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 38 to 45 degrees F
Frost-free period: 70 to 100 days

Typical pedon of Grandpon ashy loam on a 15-percent, east-facing backslope at an elevation of 4,400 feet; about 1,000 feet south and 2,500 feet east of the northwest corner of sec. 34, T. 6 N., R. 16 E.; latitude 45 degrees 58 minutes 3 seconds north and longitude 120 degrees 47 minutes 30 seconds west.

- Oi—1 inch to 0; slightly decomposed needles and twigs.
- A1—0 to 3 inches; dark brown (7.5YR 4/2) ashy loam, dark reddish brown (5YR 2/2) moist; weak very fine granular structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and few fine roots; many fine irregular pores; slightly acid (pH 6.1); clear smooth boundary.
- A2—3 to 9 inches; dark brown (7.5YR 4/2) ashy loam, dark reddish brown (5YR 2/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; common fine and very fine roots; many very fine irregular pores; 10 percent gravel; slightly acid (pH 6.1); clear smooth boundary.
- AB—9 to 20 inches; dark brown (7.5YR 4/2) ashy loam, dark reddish brown (5YR 3/2) moist; weak very fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and common medium roots; many very fine irregular pores; 10 percent gravel; moderately acid (pH 6.0); gradual smooth boundary.
- BA—20 to 30 inches; reddish brown (5YR 5/3) ashy loam, dark reddish brown (5YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and few medium roots; many very fine irregular pores; 10 percent gravel; moderately acid (pH 5.8); gradual smooth boundary.
- 2Bw—30 to 60 inches; brown (7.5YR 5/4) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine irregular pores; 35 percent gravel and 5 percent cobbles; moderately acid (pH 5.8).

Range in Characteristics

Thickness of umbric epipedon—25 to 35 inches
 Thickness of volcanic ash influence—25 to 35 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—7 to 15 percent clay and 0 to 15 percent rock fragments in the upper part; 15 to 20 percent clay and 35 to 60 percent rock fragments in the lower part

A and AB horizons

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—slightly acid or moderately acid

BA horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 to 4 dry or moist

Texture—ashy loam or ashy very fine sandy loam

Reaction—slightly acid or moderately acid

2Bw horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Texture—very gravelly loam, very gravelly very fine sandy loam, or very gravelly fine sandy loam

Reaction—slightly acid or moderately acid

Grayland Series

Depth class: Very deep

Drainage class: Poorly drained

Position on landscape: Lacustrine terraces

Parent material: Lacustrine sediment and alluvium derived from basalt and volcanic ash

Slope range: 0 to 1 percent

Elevation: 2,200 to 2,300 feet

Mean annual precipitation: 33 to 37 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 50 to 90 days

Typical pedon of Grayland silty clay loam on a 1-percent, north-facing slope in a managed pasture of reed canarygrass and redtop at an elevation of 2,200 feet; about 2,200 feet north and 1,100 feet east of the southwest corner of sec. 5, T. 5 N., R. 12 E.; latitude 45 degrees 58 minutes 6 seconds north and longitude 121 degrees 17 minutes 15 seconds west.

Ap1—0 to 4 inches; black (10YR 2/1) silty clay loam, gray (10YR 5/1) dry; weak medium granular structure; hard, friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine irregular pores; strongly acid (pH 5.2); clear smooth boundary.

Ap2—4 to 8 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine irregular pores and common fine tubular pores; moderately acid (pH 5.6); clear wavy boundary.

E—8 to 15 inches; dark gray (10YR 4/1) silty clay loam, light gray (10YR 7/1) dry; weak medium subangular blocky structure; hard, friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine irregular pores and common very fine tubular pores; neutral (pH 6.6); gradual smooth boundary.

- Btg—15 to 24 inches; dark grayish brown (10YR 4/2) clay, gray (10YR 6/1) dry; common fine faint redoximorphic concentrations that are very dark grayish brown (10YR 3/2), dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular and tubular pores; distinct continuous clay films; neutral (pH 6.9); gradual smooth boundary.
- 2Cg—24 to 34 inches; dark grayish brown (10YR 4/2) sandy loam, grayish brown (10YR 5/2) dry; common fine distinct redoximorphic concentrations that are dark yellowish brown (10YR 4/6), yellowish brown (10YR 5/6) dry; massive; very hard, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular pores and common fine tubular pores; neutral (pH 7.3); clear smooth boundary.
- 2C1—34 to 45 inches; brown (10YR 5/3) sandy loam, very pale brown (10YR 7/3) dry; common fine distinct redoximorphic concentrations that are yellowish brown (10YR 5/6), strong brown (7.5YR 5/6) and reddish yellow (7.5YR 6/6) dry; massive; hard, firm, slightly sticky and nonplastic; few fine roots; many very fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.
- 2C2—45 to 60 inches; brown (10YR 5/3) sandy loam, pale brown (10YR 6/3) dry; many medium prominent redoximorphic concentrations that are red (2.5YR 4/6), yellowish red (5YR 4/6) and (5YR 5/6) dry; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; many very fine irregular pores; neutral (pH 7.2).

Range in Characteristics

Thickness of mollic epipedon—8 to 13 inches

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—35 to 60 percent

Water table—may be present any time of the year

Ponding—may occur early in spring

A horizon

Value—2 or 3 moist, 4 or 5 dry

Chroma—0 or 1 dry or moist

Reaction—moderately acid or strongly acid

E horizon

Hue—10YR or 2.5Y

Value—4 to 6 moist, 7 or 8 dry

Chroma—0 or 1 dry or moist

Texture—silt loam or silty clay loam

Reaction—neutral or slightly acid

Btg horizon

Hue—10YR or 2.5Y

Value—3 to 5 moist, 6 or 7 dry

Chroma—1 or 2 dry or moist

Texture—silty clay loam, silty clay, or clay

Reaction—neutral or slightly acid

2C horizon

Hue—10YR or 2.5Y

Value—4 or 5 moist, 5 to 7 dry

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Gunn Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Plateaus and hillslopes

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 0 to 65 percent

Elevation: 300 to 3,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 150 days

Typical pedon of Gunn loam on a 2-percent slope at an elevation of 1,780 feet; about 2,500 feet north and 2,600 feet east of the southwest corner of sec. 25, T. 5 N., R. 14 E.; latitude 45 degrees 53 minutes 22 seconds north and longitude 120 degrees 59 minutes 51 seconds west.

A1—0 to 6 inches; brown (7.5YR 5/3) loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few medium roots; many fine interstitial pores; slightly acid (pH 6.2); abrupt smooth boundary.

A2—6 to 10 inches; light brown (7.5YR 6/3) loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few coarse roots; common fine tubular pores; moderately acid (pH 6.0); clear wavy boundary.

BAt—10 to 18 inches; light brown (7.5YR 6/4) loam, brown to dark brown (7.5YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few medium roots; common fine and medium tubular pores; very few discontinuous clay films on faces of peds; slightly acid (pH 6.2); clear wavy boundary.

Bt1—18 to 34 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 4/4) moist; moderate fine and medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common fine and medium tubular pores; common distinct clay films on faces of peds; slightly acid (pH 6.2); gradual wavy boundary.

Bt2—34 to 45 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 4/4) moist; moderate fine and medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; many fine and medium tubular pores; common distinct clay films on faces of peds; slightly acid (pH 6.2); clear wavy boundary.

B Ct—45 to 66 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 4/4) moist; moderate coarse subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; few very fine roots between peds; many fine and medium tubular pores; many distinct clay films on faces of peds; slightly acid (pH 6.2).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—28 to 35 percent clay and 0 to 30 percent rock fragments

A horizon

Hue—7.5YR or 5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist
Reaction—slightly acid or moderately acid

Bt horizon

Hue—7.5YR or 5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture—loam or clay loam
Reaction—slightly acid or moderately acid

BCt horizon

Hue—7.5YR or 5YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—4 to 6 dry or moist
Texture—clay loam or gravelly clay loam
Reaction—slightly acid or moderately acid

Gwin Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: North-facing canyon side slopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 65 percent

Elevation: 300 to 3,000 feet

Mean annual precipitation: 16 to 24 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Typical pedon of Gwin cobbly silt loam on a 52-percent, west-facing slope at an elevation of 2,800 feet; about 800 feet south and 2,300 feet east of the northeast corner of sec. 36, T. 3 N., R. 13 E.; latitude 45 degrees 42 minutes 26 seconds north and longitude 120 degrees 7 minutes 31 seconds west.

A—0 to 5 inches; brown (7.5YR 4/3) cobbly silt loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; many very fine irregular pores; 10 percent gravel and 10 percent cobbles; neutral (pH 6.6); clear smooth boundary.

Bt—5 to 11 inches; brown (7.5YR 4/3) extremely gravelly silt loam, dark brown (7.5YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; faint patchy clay films on faces of peds; 50 percent gravel and 15 percent cobbles; slightly acid (pH 6.4); abrupt wavy boundary.

2R—11 to 15 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—10 to 20 inches

Characteristics of particle-size control section—25 to 35 percent clay and 60 to 80 percent rock fragments

A horizon

Hue—10YR or 7.5YR
Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist
 Reaction—neutral or slightly acid

Bt horizon

Hue—10YR or 7.5YR
 Value—4 or 5 dry, 2 or 3 moist
 Chroma—2 to 4 dry or moist
 Texture—very cobbly silty clay loam, very gravelly silt loam, or extremely gravelly silt loam
 Reaction—neutral or slightly acid

Haploxerolls

Depth class: Shallow to very deep
Drainage class: Well drained
Position on landscape: Low terraces, hill escarpments, and hillslopes
Parent material: Alluvium, and colluvium and residuum derived from basalt mixed with loess
Slope range: 0 to 70 percent
Elevation: 100 to 3,000 feet
Mean annual precipitation: 6 to 15 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 110 to 180 days

Reference pedon of Haploxerolls on a 50-percent, south-facing slope at an elevation of 330 feet; about 1,150 feet south and 2,700 feet east of the northwest corner of sec. 7, T. 2 N., R. 13 E.; latitude 45 degrees 40 minutes 41 seconds north and longitude 121 degrees 13 minutes 38 seconds west.

- A1—0 to 5 inches; brown (7.5YR 4/3) gravelly sandy loam, dark brown (7.5YR 3/2) moist; weak fine and very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and common medium and fine roots; 20 percent gravel and 5 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.
- A2—5 to 13 inches; brown (7.5YR 5/3) gravelly sandy loam, dark brown (7.5YR 3/3) moist; weak fine and very fine granular structure; soft, very friable, nonsticky and nonplastic; common medium, fine, and very fine roots; 20 percent gravel and 5 percent cobbles; neutral (pH 7.0); clear wavy boundary.
- Bw1—13 to 24 inches; brown (7.5YR 5/4) very gravelly sandy loam, dark brown (7.5YR 3/4) moist; weak fine and very fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; 25 percent gravel and 10 percent cobbles; neutral (pH 6.8); clear smooth boundary.
- Bw2—24 to 36 inches; brown (7.5YR 5/4) very cobbly silt loam, dark brown (7.5YR 4/4) moist; weak fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few fine and very fine roots; 25 percent gravel and 20 percent cobbles; neutral (pH 6.6); clear wavy boundary.
- Bw3—36 to 60 inches; brown (7.5YR 5/4) very cobbly silt loam, dark brown (7.5YR 4/4) moist; weak fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; 25 percent gravel and 30 percent cobbles; neutral (pH 6.8).

Range in Characteristics

Thickness of mollic epipedon—10 to 25 inches
 Depth to bedrock—10 to 60 inches or more
 Flooding—may occur early in spring (areas associated with Fluvaquents)

A horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry

Chroma—2 to 4 dry, 2 or 3 moist

Texture—gravelly sandy loam, sandy loam, or fine sandy loam

Calcium carbonate equivalent—0 to 5 percent

Reaction—neutral or slightly alkaline

Bw horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—gravelly loam, gravelly fine sandy loam, gravelly sandy loam, cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam, very cobbly sandy loam, very cobbly silt loam, very gravelly loamy sand, extremely gravelly sandy loam, extremely gravelly sand, or extremely cobbly sand

Calcium carbonate equivalent—0 to 10 percent

Reaction—neutral or slightly alkaline

Hezel Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Position on landscape: Dissected terraces and terrace escarpments

Parent material: Lacustrine sediment with a mantle of eolian sand

Slope range: 0 to 30 percent

Elevation: 500 to 700 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 52 to 54 degrees F

Frost-free period: 160 to 180 days

Typical pedon of Hezel loamy fine sand on a 1-percent slope at an elevation of 580 feet; about 2,000 feet south and 50 feet west of the northeast corner of sec. 25, T. 5 N., R. 23 E.; latitude 45 degrees 53 minutes 18 seconds north and longitude 119 degrees 52 minutes 3 seconds west.

A—0 to 5 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; slightly alkaline (pH 7.4); clear smooth boundary.

C—5 to 17 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and common fine roots; many fine irregular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.

2Ck1—17 to 31 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, friable, nonsticky and nonplastic; common very fine roots; common fine tubular pores; 5 percent gravel; strongly effervescent; moderately alkaline (pH. 8.4); clear wavy boundary.

2Ck2—31 to 60 inches; very pale brown (10YR 7/3), stratified silt loam to fine sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; few fine tubular pores; violently effervescent; strongly alkaline (pH 8.6).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—0 to 5 percent clay in the upper part and 5 to 8 percent clay in the lower part

A horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—neutral to moderately alkaline

C horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—loamy fine sand, loamy sand, or fine sand

Reaction—neutral to moderately alkaline

2Ck horizon

Value—5 to 7 dry, 5 or 6 moist

Chroma—2 or 3 dry or moist

Texture—stratified silt loam to fine sandy loam with thin lenses of fine sand

Calcium carbonate equivalent—5 to 20 percent

Reaction—slightly alkaline to strongly alkaline

Hood Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Dissected terraces and terrace escarpments

Parent material: Lacustrine deposits

Slope range: 3 to 65 percent

Elevation: 100 to 1,000 feet

Mean annual precipitation: 30 to 45 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 115 to 130 days

Typical pedon of Hood loam on a 30-percent, east-facing slope at an elevation of 400 feet; about 1,750 feet north and 1,600 feet east of the southwest corner of sec. 25, T. 4 N., R. 10 E.; latitude 45 degrees 48 minutes 12 seconds north and longitude 121 degrees 29 minutes 58 seconds west.

Oi—1 inch to 0; slightly decomposed needles, leaves, and twigs.

A—0 to 8 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to weak fine granular; slightly hard, friable, slightly sticky and nonplastic; many very fine and common fine roots; common fine irregular pores; moderately acid (pH 6.0); clear smooth boundary.

AB—8 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many fine and few medium roots; many very fine tubular and common fine irregular pores; moderately acid (pH 6.0); clear wavy boundary.

Bt1—15 to 27 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common fine and few medium roots; many very fine tubular and common fine irregular pores; few faint clay films in pores; moderately acid (pH 6.0); clear smooth boundary.

Bt2—27 to 36 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate

medium and fine subangular blocky structure; hard, firm, slightly sticky and moderately plastic; few fine roots; common fine irregular and tubular pores; common distinct clay films on faces of peds and in pores; moderately acid (pH 6.0); clear smooth boundary.

Bt3—36 to 60 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure parting to fine subangular blocky; hard, friable, slightly sticky and slightly plastic; few fine roots; common fine irregular and tubular pores; few faint clay films on faces of peds and in pores; moderately acid (pH 6.0).

Range in Characteristics

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—18 to 25 percent

A horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—slightly acid or moderately acid

Bt horizon

Value—5 or 6 dry

Chroma—3 or 4 dry or moist

Texture—silt loam or loam

Reaction—slightly acid or moderately acid

Horseflat Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: Plateaus, hillslopes, and ridges

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 65 percent

Elevation: 250 to 3,200 feet

Mean annual precipitation: 9 to 14 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 120 to 170 days

Typical pedon of Horseflat cobbly silt loam on a 27-percent, south-facing slope at an elevation of 2,660 feet; about 2,500 feet north and 1,830 feet east of the southwest corner of sec. 32, T. 3 N., R. 14 E.; latitude 45 degrees 42 minutes 6 seconds north and longitude 121 degrees 5 minutes 4 seconds west.

A—0 to 4 inches; brown (7.5YR 5/3) cobbly silt loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine irregular pores; 5 percent gravel and 15 percent cobbles; neutral (pH 6.8); clear smooth boundary.

AB—4 to 12 inches; brown (7.5YR 5/3) very cobbly loam, dark brown (7.5YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine irregular pores; 25 percent gravel and 25 percent cobbles; neutral (pH 6.6); clear wavy boundary.

Bt—12 to 15 inches; brown (7.5YR 5/4) very cobbly loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular

pores; common distinct clay films on faces of peds; 25 percent gravel and 30 percent cobbles; neutral (pH 6.6); abrupt wavy boundary.
R—15 to 19 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—12 to 17 inches
Depth to bedrock—12 to 20 inches
Characteristics of particle-size control section—25 to 33 percent clay and 35 to 65 percent rock fragments

A horizon

Hue—10YR or 7.5YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 4 dry, 2 or 3 moist
Reaction—neutral or slightly alkaline

AB horizon

Hue—10YR or 7.5YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 to 4 dry or moist
Texture—very gravelly clay loam, very gravelly loam, or very cobbly loam
Reaction—neutral or slightly alkaline

Bt horizon

Hue—10YR or 7.5YR
Value—4 to 6 dry
Chroma—2 to 4 dry or moist
Texture—extremely gravelly loam, extremely cobbly loam, very cobbly loam, or very cobbly clay loam
Reaction—neutral or slightly alkaline

Husum Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: River terraces and alluvial fans

Parent material: Volcanic ash over alluvium derived from basalt and andesite

Slope range: 0 to 15 percent

Elevation: 250 to 1,400 feet

Mean annual precipitation: 35 to 45 inches

Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 105 to 120 days

Typical pedon of Husum gravelly ashy loam on a 2-percent slope at an elevation of 380 feet; about 950 feet north and 1,250 feet east of the southwest corner of sec. 35, T. 4 N., R. 10 E.; latitude 45 degrees 47 minutes 4 seconds north and longitude 121 degrees 31 minutes 7 seconds west.

Oi—1 inch to 0; slightly decomposed needles, leaves, and twigs.

A—0 to 10 inches; brown (10YR 4/3) gravelly ashy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and common fine roots; many very fine irregular pores; 20 percent gravel and 10 percent cobbles; moderately acid (pH 6.0); clear smooth boundary.

Bw—10 to 28 inches; yellowish brown (10YR 5/4) very gravelly ashy loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; soft, very friable,

slightly sticky and nonplastic; weakly smeary; few very fine and fine roots; many fine irregular pores; 40 percent gravel and 15 percent cobbles; slightly acid (pH 6.1); clear wavy boundary.

2C—28 to 60 inches; yellowish brown (10YR 5/4) extremely cobbly loamy sand, dark brown (7.5YR 3/4) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores; 50 percent gravel, 20 percent cobbles, and 15 percent stones; moderately acid (pH 6.0).

Range in Characteristics

Thickness of volcanic ash influence—24 to 36 inches

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—24 to 36 inches

Characteristics of particle-size control section—10 to 15 percent clay in the upper part and 0 to 2 percent clay in the lower part and 45 to 85 percent rock fragments

Flooding—may occur early in spring

A horizon

Hue—5YR to 10YR

Chroma—2 to 6 dry or moist

Reaction—slightly acid or moderately acid

Bw horizon

Hue—7.5YR or 10YR

Value—4 or 6 dry, 3 to 5 moist

Chroma—4 to 6 dry or moist

Texture—very gravelly ashy loam or extremely gravelly ashy loam

Reaction—slightly acid or moderately acid

2C horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 3 or 4 moist

Texture—extremely cobbly loamy sand, extremely gravelly loamy sand, or extremely gravelly sandy loam

Reaction—slightly acid or moderately acid

Hyprairie Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Plateaus and hillslopes

Parent material: Loess over old alluvium

Slope range: 2 to 65 percent

Elevation: 1,000 to 2,800 feet

Mean annual precipitation: 15 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Hyprairie silt loam on a 4-percent slope at an elevation of 2,080 feet; about 2,475 feet north and 750 feet west of the southeast corner of sec. 9, T. 3 N., R. 13 E.; latitude 45 degrees 45 minutes 33 seconds north and longitude 121 degrees 10 minutes 39 seconds west.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; moderately acid (pH 5.8); abrupt smooth boundary.

A—7 to 18 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine and few fine roots; many fine irregular and common fine and few coarse tubular pores; moderately acid (pH 5.9); clear smooth boundary.

AB—18 to 25 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and slightly plastic; few very fine roots; common fine tubular and few fine irregular pores; moderately acid (pH 6.0); clear smooth boundary.

2Bt1—25 to 48 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine tubular and few fine irregular pores; few faint clay films in pores; 10 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

2Bt2—48 to 60 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine tubular and many fine and medium irregular pores; common distinct clay films on faces of peds and in pores; 25 percent gravel; slightly acid (pH 6.5).

Range in Characteristics

Thickness of mollic epipedon—20 to 30 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 35 percent clay and 3 to 20 percent rock fragments

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—slightly acid or moderately acid

AB horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry

Texture—silt loam or loam

Reaction—slightly acid or moderately acid

2Bt horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry

Chroma—3 to 6 dry or moist

Texture—loam, silt loam, clay loam, or gravelly clay loam

Reaction—neutral or slightly acid

Itat Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes and dissected plateaus

Parent material: Residuum and colluvium derived from basalt mixed with a minor amount of loess and in places, old alluvium

Slope range: 5 to 45 percent

Elevation: 1,300 to 3,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 140 days

Typical pedon of Itat cobbly loam on a 14-percent, south-facing backslope at an elevation of 2,700 feet; about 1,100 feet south and 50 feet east of the northwest corner of sec. 13, T. 5 N., R. 17 E.; latitude 45 degrees 55 minutes 17 seconds north and longitude 120 degrees 38 minutes 3 seconds west.

Oi—1 inch to 0; slightly decomposed needles, leaves, and twigs.

A—0 to 3 inches; brown (7.5YR 4/4) cobbly loam, dark reddish brown (5YR 3/3) moist; weak fine granular structure and weak very fine subangular blocky; soft, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 10 percent gravel and 10 percent cobbles; moderately acid (pH 6.0); clear smooth boundary.

BA—3 to 9 inches; yellowish red (5YR 4/6) gravelly loam, dark reddish brown (2.5YR 3/4) moist; weak fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine and few fine tubular pores; 15 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); gradual wavy boundary.

Bw—9 to 21 inches; yellowish red (5YR 5/6) gravelly loam, dark reddish brown (2.5YR 3/4) moist; weak fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine irregular pores; 25 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); gradual wavy boundary.

BC—21 to 31 inches; yellowish red (5YR 5/6) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine irregular pores; 45 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.

C—31 to 60 inches; yellowish red (5YR 5/6) extremely cobbly loam, yellowish red (5YR 4/6) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine irregular pores; 40 percent gravel and 35 percent cobbles; slightly acid (pH 6.2).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 20 percent clay (average) and 35 to 60 percent rock fragments

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—2 to 4 dry or moist

Reaction—slightly acid or moderately acid

BA and Bw horizons

Hue—2.5YR to 7.5YR

Value—4 or 5 dry

Chroma—4 to 6 dry or moist

Reaction—slightly acid or moderately acid

BC horizon

Hue—2.5YR to 7.5YR

Value—4 or 5 dry

Chroma—4 to 6 dry or moist

Reaction—slightly acid or moderately acid

C horizon

Texture—extremely cobbly loam, very gravelly loam, or extremely gravelly sandy clay loam

Reaction—slightly acid or moderately acid

Jebe Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 30 to 90 percent

Elevation: 500 to 2,800 feet

Mean annual precipitation: 35 to 45 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 130 days

Typical pedon of Jebe gravelly loam on a 70-percent, northwest-facing side slope at an elevation of 1,500 feet; about 100 feet north and 1,750 feet west of the southeast corner of sec. 10, T. 4 N., R. 11 E.; latitude 45 degrees 50 minutes 28 seconds north and longitude 121 degrees 24 minutes 42 seconds west.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; 25 percent gravel and 5 percent cobbles; moderately acid (pH 5.8); clear smooth boundary.

A2—5 to 13 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; many very fine, fine, and medium roots; many fine irregular and common fine tubular pores; 25 percent gravel and 15 percent cobbles; moderately acid (pH 5.8); clear wavy boundary.

BA—13 to 31 inches; brown (7.5YR 5/4) very gravelly loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and medium tubular pores; 30 percent gravel and 10 percent cobbles; moderately acid (pH 6.0); gradual wavy boundary.

Bt1—31 to 43 inches; brown (7.5YR 5/4) very gravelly loam, dark brown (7.5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and moderately plastic; common fine roots; common fine tubular pores; few faint clay films on faces of peds and in pores; 40 percent gravel, 20 percent cobbles, and 10 percent basalt paragravel; slightly acid (pH 6.2); gradual wavy boundary.

Bt2—43 to 60 inches; light brown (7.5YR 6/4) extremely gravelly clay loam, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and moderately plastic; few fine roots; few fine tubular pores; few faint clay films on faces of peds and in pores; 50 percent gravel, 15 percent cobbles, and 15 percent basalt paragravel; slightly acid (pH 6.2).

Range in Characteristics

Thickness of mollic epipedon—10 to 16 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 30 percent clay, 35 to 55 percent rock fragments, and 10 to 20 percent pararock fragments

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—moderately acid or strongly acid

BA horizon, and BA_t horizon, where present

Hue—7.5YR or 10YR

Value—5 or 6 dry

Chroma—3 or 4 moist

Texture—very gravelly loam or very cobbly loam

Reaction—slightly acid or moderately acid

B_t horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry

Texture—very cobbly loam, very gravelly loam, or extremely gravelly clay loam

Reaction—slightly acid or moderately acid

Kahlotus Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces and terrace escarpments

Parent material: Glaciofluvial sediment mixed with a minor amount of loess

Slope range: 2 to 60 percent

Elevation: 300 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Kahlotus silt loam on a 7-percent, southwest-facing slope at an elevation of 800 feet; about 1,100 feet south and 200 feet east of the northwest corner of sec. 10, T. 3 N., R. 20 E.; latitude 45 degrees 45 minutes 40 seconds north and longitude 120 degrees 18 minutes 12 seconds west.

Ap—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.

A1—4 to 14 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; common very fine roots; common fine tubular pores; neutral (pH 7.2); clear wavy boundary.

Bw1—14 to 27 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; common very fine roots; few fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.

Bw2—27 to 33 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; few very fine roots; few fine tubular pores; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bk—33 to 60 inches; light brownish gray (10YR 6/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, firm, nonsticky and nonplastic; few very fine roots;

few fine tubular pores; strongly effervescent; few fine calcium carbonate accumulations; moderately alkaline (pH 8.2).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—3 to 7 percent clay and 0 to 5 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Texture—silt loam or very fine sandy loam

Reaction—neutral or slightly alkaline

Bk horizon

Hue—10YR or 2.5Y

Value—4 or 5 moist

Chroma—2 or 3 dry or moist

Calcium carbonate equivalent—0 to 6 percent

Kaiders Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Colluvium derived from basalt mixed with a minor amount of volcanic ash and loess

Slope range: 5 to 45 percent

Elevation: 1,800 to 3,300 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 130 days

Typical pedon of Kaiders cobbly loam on a 15-percent, south-facing backslope at an elevation of 2,440 feet; about 2,500 feet north and 3,000 feet west of the southeast corner of sec. 33, T. 6 N., R. 14 E.; latitude 45 degrees 57 minutes 50 seconds north and longitude 121 degrees 3 minutes 43 seconds west.

Oi—1 inch to 0; slightly decomposed needles and twigs.

A—0 to 6 inches; reddish brown (5YR 5/4) cobbly loam, dark reddish brown (2.5YR 3/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine irregular pores; 10 percent gravel and 20 percent cobbles; neutral (pH 6.6); clear smooth boundary.

BA—6 to 20 inches; reddish brown (5YR 5/4) gravelly loam, dark reddish brown (2.5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and few very fine roots; many very fine irregular pores; 15 percent gravel, 5 percent cobbles, and 20 percent basalt pararock fragments; neutral (pH 6.6); gradual smooth boundary.

Bt1—20 to 31 inches; yellowish red (5YR 5/6) gravelly loam, dark red (2.5YR 3/6) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine irregular and

common fine tubular pores; few faint clay films lining pores; 20 percent gravel and 10 percent basalt pararock fragments; slightly acid (pH 6.4); gradual smooth boundary.

Bt2—31 to 42 inches; yellowish red (5YR 5/6) gravelly loam, red (2.5YR 3/6) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular and common fine tubular pores; few faint clay films on faces of peds and lining pores; 15 percent gravel, 5 percent cobbles, and 20 percent basalt pararock fragments; slightly acid (pH 6.2); clear smooth boundary.

BCt—42 to 60 inches; yellowish red (5YR 5/6) very gravelly loam, red (2.5YR 4/6) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; many very fine irregular pores; few faint clay films on faces of peds and lining pores; 40 percent gravel, 10 percent cobbles, and 20 percent basalt pararock fragments; moderately acid (pH 6.0).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 30 percent clay, 15 to 35 percent rock fragments, and 10 to 25 percent pararock fragments

A horizon

Hue—2.5YR to 7.5YR

Value—4 or 5 dry

Chroma—2 to 4 dry or moist

Texture—stony loam or cobbly loam

Reaction—neutral or slightly acid

BA horizon

Hue—2.5YR to 7.5YR

Value—3 or 4 dry

Chroma—3 to 6 dry or moist

Reaction—neutral or slightly acid

Bt horizon

Hue—2.5YR to 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 to 6 dry or moist

Texture—gravelly loam or gravelly clay loam

Reaction—neutral to moderately acid

BCt horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry

Chroma—4 to 6 dry or moist

Texture—very gravelly loam or extremely gravelly loam

Reaction—neutral to moderately acid

Kennewick Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces and terrace escarpments

Parent material: Lacustrine sediment

Slope range: 2 to 60 percent

Elevation: 400 to 1,600 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Kennewick silt loam on a 30-percent, south-facing slope at an elevation of 620 feet; about 120 feet north and 2,500 feet west of the southeast corner of sec. 14, T. 5 N., R. 23 E.; latitude 45 degrees 54 minutes 36 seconds north and longitude 119 degrees 53 minutes 55 seconds west.

- A1—0 to 4 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; slightly alkaline (pH 7.8); clear smooth boundary.
- A2—4 to 10 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.
- C1—10 to 14 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and nonplastic; common very fine and fine roots; common fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
- C2—14 to 28 inches; pale yellow (2.5Y 8/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common very fine irregular pores; segregated calcium carbonate in pores and root channels; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.
- C3—28 to 42 inches; light gray (2.5Y 7/2) very fine sandy loam with thin strata of silt loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common fine tubular pores; segregated calcium carbonate in pores and root channels; violently effervescent; moderately alkaline (pH 8.4); gradual wavy boundary.
- C4—42 to 60 inches; light gray (2.5Y 7/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; very thin laminations; strongly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—3 to 10 percent

A horizon

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Calcium carbonate equivalent—1 to 10 percent

Reaction—slightly alkaline or moderately alkaline

C horizon

Hue—10YR or 2.5Y

Value—5 to 8 dry, 4 to 6 moist

Chroma—2 or 3 dry or moist

Calcium carbonate equivalent—1 to 10 percent

Reaction—moderately alkaline or strongly alkaline

Kiakus Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus, dissected plateaus, and canyon shoulder slopes

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 30 percent

Elevation: 800 to 3,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Typical pedon of Kiakus silt loam on a 13-percent, south-facing slope at an elevation of 2,170 feet; about 1,300 feet north and 2,000 feet east of the southwest corner of sec. 5, T. 5 N., R. 14 E.; latitude 45 degrees 56 minutes 45 seconds north and longitude 121 degrees 5 minutes 0 seconds west.

A1—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 5 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

A2—4 to 11 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine irregular and common very fine tubular pores; 5 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.

Bt1—11 to 28 inches; brown (7.5YR 5/3) silty clay loam, dark brown (7.5YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few distinct clay films in pores and on faces of peds; few very fine roots; few very fine irregular and tubular pores; 5 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.

Bt2—28 to 33 inches; brown (7.5YR 5/3) gravelly clay loam, dark brown (7.5YR 3/3) moist; weak fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few distinct clay films in pores and on faces of peds; few very fine roots; few very fine irregular and tubular pores; 20 percent gravel; neutral (pH 6.6); abrupt wavy boundary.

2R—33 to 37 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—20 to 40 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—18 to 35 percent clay and 5 to 20 percent gravel

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—3 or 4 dry, 2 or 3 moist

Bt horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—3 or 4 dry or moist

Texture—silty clay loam, clay loam, loam, or gravelly clay loam

Reaction—neutral or slightly acid

Kingtain Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Colluvium derived from basalt mixed with volcanic ash

Slope range: 8 to 75 percent

Elevation: 1,600 to 4,300 feet

Mean annual precipitation: 45 to 55 inches

Mean annual air temperature: 38 to 45 degrees F

Frost-free period: 65 to 90 days

Typical pedon of Kingtain gravelly ashy loam on a 30-percent, southeast-facing backslope at an elevation of 2,435 feet; about 400 feet north and 2,000 feet west of the southeast corner of sec. 15, T. 5 N., R. 10 E.; latitude 45 degrees 54 minutes 50 seconds north and longitude 121 degrees 32 minutes 10 seconds west.

A1—0 to 5 inches; dark brown (10YR 4/3) gravelly ashy loam, dark brown (7.5YR 3/2) moist; weak very fine granular structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots throughout; many very fine interstitial pores; 20 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

A2—5 to 15 inches; brown (10YR 5/3) gravelly ashy loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and common medium roots throughout; many fine interstitial pores; 20 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); clear smooth boundary.

AB—15 to 26 inches; yellowish brown (10YR 5/4) very gravelly ashy loam, dark brown (7.5YR 3/4) moist; weak very fine subangular blocky structure parting to weak fine subangular blocky; soft, very friable, nonsticky and nonplastic; weakly smeary; common very fine and few coarse roots throughout; many fine interstitial and common fine tubular pores; 30 percent gravel and 10 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.

BA—26 to 49 inches; yellowish brown (10YR 5/4) very gravelly ashy loam, dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few medium roots throughout; common fine tubular pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; slightly acid (pH 6.2); clear wavy boundary.

2Bt1—49 to 56 inches; light yellowish brown (10YR 6/4) extremely cobbly loam, dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure parting to weak medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine and medium roots between peds; common fine tubular pores; 50 percent gravel and 25 percent cobbles; slightly acid (pH 6.2); gradual wavy boundary.

2Bt2—56 to 70 inches; light yellowish brown (10YR 6/4) extremely cobbly loam, dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure parting to weak medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots between peds; common fine tubular pores; few discontinuous clay films in root channels and pores; 50 percent gravel and 25 percent cobbles; moderately acid (pH 6.0).

Range in Characteristics

Thickness of umbric epipedon—10 to 18 inches

Thickness of volcanic ash influence—40 to 50 inches

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—40 to 60 inches

Characteristics of particle-size control section—7 to 15 percent clay and 35 to 65 percent rock fragments (weighted average)

A horizon

Hue—5YR to 10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—2 to 4 dry, 2 or 3 moist

Reaction—neutral to moderately acid

AB horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Texture—very gravelly ashy loam or very cobbly ashy loam

Reaction—neutral or slightly acid

BA horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Texture—very cobbly ashy loam, extremely gravelly ashy loam, or very gravelly ashy loam

Reaction—neutral or slightly acid

2Bt horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly loam, extremely cobbly loam, very cobbly loam, or extremely gravelly loam

Reaction—neutral to moderately acid

Kiona Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes and canyon side slopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 65 percent

Elevation: 200 to 1,500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Kiona very stony silt loam on a 60-percent, east-facing slope at an elevation of 400 feet; about 800 feet south and 1,200 feet east of the northwest corner of sec. 3, T. 4 N., R. 23 E.; latitude 45 degrees 51 minutes 48 seconds north and longitude 119 degrees 55 minutes 31 seconds west.

A—0 to 9 inches; brown (10YR 5/3) very stony silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular and few fine tubular pores; 25 percent gravel, 10 percent cobbles, and 10 percent stones; 0.1 percent stones on surface; slightly alkaline (pH 7.4); clear wavy boundary.

Bw—9 to 25 inches; pale brown (10YR 6/3) very cobbly silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine irregular and tubular pores; 30 percent gravel, 20 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); clear wavy boundary.

Bk1—25 to 44 inches; pale brown (10YR 6/3) extremely cobbly silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine irregular and few fine tubular pores; 40 percent gravel, 25 percent cobbles, and 10 percent stones; coatings of calcium carbonate on rock fragments; violently effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

Bk2—44 to 57 inches; light gray (10YR 7/2) extremely cobbly silt loam, brown (10YR 5/3) moist; massive; slightly hard, firm, nonsticky and nonplastic; few very fine roots; common fine irregular pores; 35 percent gravel, 25 percent cobbles, and 10 percent stones; coatings of calcium carbonate on rock fragments; violently effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

Bk3—57 to 60 inches; light gray (10YR 7/2) extremely cobbly loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; common fine irregular pores; 45 percent gravel, 25 percent cobbles, and 10 percent stones; very weak cementation of calcium carbonate; violently effervescent; moderately alkaline (pH 8.2).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—5 to 15 percent clay and 35 to 75 percent angular basalt fragments

A horizon

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Texture—very stony silt loam or stony very fine sandy loam

Bw horizon

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Texture—cobbly silt loam, extremely cobbly very fine sandy loam, or very cobbly silt loam

Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—5 to 7 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Texture—very cobbly sandy loam, extremely cobbly loam, or extremely cobbly silt loam

Calcium carbonate equivalent—1 to 5 percent

Reaction—slightly alkaline or moderately alkaline

Klicko Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Loess mixed with colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 2 to 30 percent

Elevation: 2,600 to 4,700 feet

Mean annual precipitation: 17 to 30 inches

Mean annual air temperature: 41 to 45 degrees F

Frost-free period: 60 to 130 days

Typical pedon of Klicko ashy silt loam on a 6-percent, southwest-facing slope at an

elevation of 3,640 feet; about 2,100 feet north and 1,700 feet west of the southeast corner of sec. 23, T. 6 N., R. 19 E.; latitude 45 degrees 59 minutes 22 seconds north and longitude 120 degrees 23 minutes 31 seconds west.

- A—0 to 7 inches; brown (7.5YR 5/4) ashy silt loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; very soft, very friable, nonsticky and nonplastic; many very fine roots; many fine irregular pores; 10 percent gravel; slightly acid (pH 6.2); clear smooth boundary.
- AB—7 to 17 inches; brown (7.5YR 5/4) silt loam, dark brown (7.5YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and common fine and medium roots; common fine irregular and common fine and medium tubular pores; 10 percent gravel; slightly acid (pH 6.4); clear wavy boundary.
- Bw1—17 to 31 inches; brown (7.5YR 5/4) silt loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and few fine roots; common fine irregular and many fine and medium tubular pores; 10 percent gravel; slightly acid (pH 6.4); gradual wavy boundary.
- Bw2—31 to 39 inches; light brown (7.5YR 6/4) gravelly loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine roots; common fine tubular pores; 20 percent gravel; slightly acid (pH 6.2); abrupt wavy boundary.
- 2R—39 to 43 inches; fractured basalt.

Range in Characteristics

Thickness of mollic epipedon—9 to 18 inches

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—10 to 18 percent clay and 10 to 25 percent rock fragments

Reaction—neutral or slightly acid throughout

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

AB horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3 moist

Texture—silt loam or loam

Bw horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 moist

Texture—silt loam, loam, or gravelly loam

Koehler Series

Depth class: Moderately deep

Drainage class: Somewhat excessively drained

Position on landscape: Terraces

Parent material: Sandy eolian deposits

Slope range: 0 to 10 percent

Elevation: 600 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Typical pedon of Koehler loamy fine sand on a 1-percent slope at an elevation of 600 feet; about 100 feet south and 150 feet west of the northeast corner of sec. 36, T. 5 N., R. 23 E.; latitude 45 degrees 52 minutes 45 seconds north and longitude 119 degrees 52 minutes 3 seconds west.

A1—0 to 4 inches; brown (10YR 5/3) loamy fine sand, very dark grayish brown (10YR 3/2) moist; single grain; loose; many very fine and common medium roots; 5 percent gravel 2 to 5 millimeters in diameter and 5 percent calcium carbonate and silica fragments; slightly alkaline (pH 7.6); clear smooth boundary.

A2—4 to 15 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; single grain; loose; common very fine and fine roots; 10 percent calcium carbonate and silica fragments; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bw—15 to 25 inches; pale brown (10YR 6/3) loamy fine sand, dark brown (10YR 4/3) moist; massive; soft, friable, nonsticky and nonplastic; common very fine and fine roots; 10 percent calcium carbonate and silica fragments; slightly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bk1—25 to 32 inches; light gray (10YR 7/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; massive; soft, friable, nonsticky and nonplastic; few very fine and fine roots; 5 percent calcium carbonate and silica fragments; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

Bk2—32 to 36 inches; light brownish gray (10YR 6/2) gravelly loamy sand, dark grayish brown (10YR 4/2) moist; massive; soft, friable, nonsticky and nonplastic; few fine roots; 15 percent gravel and 15 percent calcium carbonate and silica fragments; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.

2Bkqm—36 to 40 inches; indurated duripan cemented with calcium carbonate and silica; abrupt irregular boundary.

3Bkqm/C—45 to 60 inches; stratified, indurated material with lenses of very gravelly sandy loam.

Range in Characteristics

Depth to duripan—20 to 40 inches

Characteristics of particle-size control section—1 to 5 percent clay, 0 to 15 percent gravel-sized fragments, and 5 to 25 percent gravel-sized calcium carbonate fragments

A horizon

Value—5 or 6 dry, 3 to 5 moist

Chroma—2 or 3 dry or moist

Reaction—slightly alkaline or moderately alkaline

Bw and Bk1 horizons

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—loamy fine sand, loamy sand, or fine sand

Calcium carbonate equivalent—0 to 10 percent

Reaction—moderately alkaline or strongly alkaline

Bk2 horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—gravelly loamy sand, very gravelly loamy fine sand, or very gravelly fine sand

Calcium carbonate equivalent—5 to 15 percent

Reaction—moderately alkaline or strongly alkaline

The 3Bkqm/C horizon is indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium.

Konert Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Position on landscape: Flood plains

Parent material: Alluvium

Slope range: 0 to 2 percent

Elevation: 1,500 to 2,000 feet

Mean annual precipitation: 15 to 22 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 90 to 120 days

Typical pedon of Konert silt loam on a 1-percent slope at an elevation of 1,580 feet; about 1,500 feet south and 30 feet west of the northeast corner of sec. 20, T. 3 N., R. 15 E.; latitude 45 degrees 44 minutes 3 seconds north and longitude 120 degrees 56 minutes 51 seconds west.

A1—0 to 8 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine irregular pores; neutral (pH 7.0); gradual smooth boundary.

A2—8 to 17 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; common fine irregular and common fine and medium tubular pores; neutral (pH 7.2); gradual smooth boundary.

A3—17 to 25 inches; gray (10YR 5/1) silty clay, very dark gray (10YR 3/1) moist; few fine prominent redoximorphic concentrations that are brownish yellow (10YR 6/6), dark yellowish brown (10YR 4/6) moist; moderate medium prismatic structure parting to strong medium subangular blocky; slightly hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; few fine irregular and common fine tubular pores; neutral (pH 7.2); clear wavy boundary.

Btg1—25 to 36 inches; light gray (5Y 6/1) silty clay, dark gray (5Y 4/1) moist; many medium prominent redoximorphic concentrations that are brownish yellow (10YR 6/6), dark yellowish brown (10YR 4/6) moist; weak medium prismatic structure parting to moderate medium subangular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common fine tubular pores; few thin clay films on peds and in pores; neutral (pH 7.2); clear wavy boundary.

Btg2—36 to 45 inches; light gray (5Y 6/1) silty clay loam, dark gray (5Y 4/1) moist; many medium prominent redoximorphic concentrations that are brownish yellow (10YR 6/6), yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few fine tubular pores; neutral (pH 7.2); clear wavy boundary.

Cg—45 to 60 inches; light gray (5Y 6/1) clay loam, dark gray (5Y 4/1) moist; many fine prominent redoximorphic concentrations that are brownish yellow (10YR 6/6),

yellowish brown (10YR 5/6) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and moderately plastic; common fine tubular pores; neutral (pH 7.2).

Range in Characteristics

Thickness of mollic epipedon—24 to 30 inches
 Depth to bedrock—more than 60 inches
 Content of clay in particle-size control section—35 to 45 percent
 Water table—may be present in winter to spring
 Flooding—may occur in winter to spring

A horizon

Hue—10YR or 2.5Y
 Value—3 to 5 dry, 1 or 2 moist
 Chroma—1 or 2 dry or moist
 Texture—silt loam in the upper part and silty clay loam or silty clay in the lower part

Btg horizon

Hue—2.5Y or 5Y
 Value—5 or 6 dry, 4 or 5 moist
 Chroma—1 or 2 dry or moist
 Texture—silty clay or silty clay loam

Cg horizon

Hue—2.5Y or 5Y
 Texture—clay loam, silt loam, or silty clay loam

Konner Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on landscape: Flood plains
Parent material: Alluvium
Slope range: 0 to 3 percent
Elevation: 1,500 to 1,800 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 90 to 120 days

Typical pedon of Konner silt loam on a 1-percent slope at an elevation of 1,580 feet; about 50 feet south and 300 feet west of the northeast corner of sec. 14, T. 3 N., R. 15 E.; latitude 45 degrees 45 minutes 5 seconds north and longitude 121 degrees 53 minutes 12 seconds west.

Ap—0 to 8 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular pores; neutral (pH 7.0); abrupt smooth boundary.

A—8 to 22 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine tubular pores; organic coatings in pores; neutral (pH 7.2); abrupt smooth boundary.

BAt—22 to 31 inches; grayish brown (10YR 5/2) silty clay loam, very dark gray (10YR 3/1) moist; moderate medium and thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine

and medium tubular pores; few faint clay films in pores; slightly alkaline (pH 7.4); abrupt smooth boundary.

Btg1—31 to 48 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; few prominent yellowish brown (10YR 5/6) redoximorphic concentrations; strong fine subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common fine and medium tubular pores; continuous distinct clay films on faces of peds and in pores; slightly alkaline (pH 7.6); clear smooth boundary.

Btg2—48 to 60 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; strong fine and medium subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; few very fine roots; common fine and medium tubular pores; continuous distinct clay films on faces of peds and in pores; slightly alkaline (pH 7.6).

Range in Characteristics

Thickness of mollic epipedon—30 to 40 inches or more

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—27 to 35 percent clay

Water table—may be present late in winter to early in spring

Flooding—may occur late in winter to early in spring

A horizon

Hue—10YR or 2.5Y

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly acid

BAt horizon

Hue—10YR or 2.5Y

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Texture—silty clay loam or clay loam

Reaction—slightly acid to slightly alkaline

Btg horizon

Hue—10YR or 2.5Y

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Texture—silty clay loam or clay loam

Reaction—neutral or slightly alkaline

Legall Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 5 to 75 percent

Elevation: 200 to 3,500 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 110 to 150 days

Typical pedon of Legall cobbly loam on a 25-percent, southwest-facing side slope at an elevation of 800 feet; about 100 feet north and 1,600 feet east of the southwest

corner of sec. 30, T. 5 N., R. 14 E.; latitude 45 degrees 53 minutes 6 seconds north and longitude 121 degrees 6 minutes 24 seconds west.

- A1—0 to 8 inches; brown (7.5YR 5/3) cobbly loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; many fine irregular pores; 15 percent gravel and 15 percent cobbles; moderately acid (pH 5.8); clear wavy boundary.
- A2—8 to 18 inches; brown (7.5YR 5/3) very cobbly loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium and coarse roots; common fine tubular pores; 15 percent gravel and 25 percent cobbles; moderately acid (pH 6.0); gradual irregular boundary.
- Bt1—18 to 40 inches; brown (7.5YR 5/4) very cobbly loam, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and moderately plastic; common fine and medium roots; common fine tubular pores; common distinct clay films on faces of peds; 20 percent gravel and 30 percent cobbles; slightly acid (pH 6.2); gradual wavy boundary.
- Bt2—40 to 60 inches; light brown (7.5YR 6/4) very cobbly clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few fine tubular pores; common distinct clay films on faces of peds; 15 percent gravel and 40 percent cobbles; slightly acid (pH 6.4).

Range in Characteristics

Thickness of mollic epipedon—15 to 20 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 35 percent clay and 35 to 65 percent rock fragments

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Reaction—slightly acid or moderately acid

Bt horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Texture—very cobbly loam or very cobbly clay loam

Reaction—moderately acid or slightly acid

Leidl Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus and canyon side slopes

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash and loess in the upper part

Slope range: 2 to 75 percent

Elevation: 200 to 3,000 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 140 days

Typical pedon of Leidl extremely cobbly ashy loam on a 55-percent, west-facing backslope at an elevation of 1,000 feet; about 3,500 feet north and 3,000 feet east of

the southwest corner of sec. 31, T. 5 N., R. 14 E.; latitude 45 degrees 52 minutes 45 seconds north and longitude 121 degrees 5 minutes 50 seconds west.

A—0 to 5 inches; brown (7.5YR 5/3) extremely cobbly ashy loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine interstitial pores; 15 percent gravel, 35 percent cobbles, and 10 percent stones; slightly acid (pH 6.4); clear smooth boundary.

BAt—5 to 12 inches; reddish brown (5YR 4/4) very gravelly ashy clay loam, dark reddish brown (2.5YR 3/3) moist; weak fine granular structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine roots; many very fine interstitial and few very fine tubular pores; 45 percent gravel and 10 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.

Bt—12 to 25 inches; brown (7.5YR 5/4) extremely gravelly clay loam, dark reddish brown (5YR 3/4) moist; weak very fine and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine interstitial and common very fine tubular pores; many distinct clay films on faces of peds; 50 percent gravel and 20 percent cobbles; neutral (pH 6.6); abrupt irregular boundary.

2R—25 to 29 inches; fractured basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 18 inches

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—27 to 35 percent clay and 45 to 80 percent rock fragments

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Reaction—neutral or slightly acid

BAt horizon

Hue—2.5YR to 7.5YR

Value—4 or 5 dry

Texture—very gravelly ashy clay loam, extremely gravelly ashy clay loam, or very cobbly ashy clay loam

Reaction—neutral or slightly acid

Bt horizon

Hue—5YR or 7.5YR

Chroma—4 to 6 dry or moist

Texture—very gravelly clay loam, extremely gravelly clay loam, or very cobbly clay loam

Reaction—neutral or slightly acid

Lickskillet Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: Plateaus and canyon side slopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 0 to 90 percent

Elevation: 250 to 3,200 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 100 to 180 days

Typical pedon of Licksillet silt loam on an 11-percent, north-facing slope at an elevation of 1,760 feet; about 2,250 feet north and 1,150 feet east of the southwest corner of sec. 22, T. 6 N., R. 22 E.; latitude 45 degrees 59 minutes 23 seconds north and longitude 120 degrees 2 minutes 57 seconds west.

A—0 to 3 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular pores; 10 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

AB—3 to 8 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine and medium tubular pores; 10 percent gravel; neutral (pH 7.2); clear wavy boundary.

Bw—8 to 15 inches; yellowish brown (10YR 5/4) very gravelly silt loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine tubular pores; 40 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.4); clear wavy boundary.

Bk—15 to 18 inches; brown (10YR 5/3) very gravelly silt loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine irregular and few fine tubular pores; 40 percent gravel and 15 percent cobbles; slightly effervescent, segregated calcium carbonate on bottom of rock fragments; moderately alkaline (pH 8.0); abrupt wavy boundary.

2R—18 to 22 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—8 to 15 inches

Depth to bedrock—12 to 20 inches

Characteristics of particle-size control section—20 to 30 percent clay and 35 to 60 percent rock fragments

A horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—cobbly silt loam or silt loam

Reaction—neutral or slightly alkaline

B horizon

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly silt loam, very cobbly loam, or very gravelly clay loam

Calcium carbonate equivalent—0 to 5 percent

Reaction—neutral to moderately alkaline

Lorena Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus, hillslopes, and canyon side slopes

Parent material: Slope alluvium and colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 0 to 65 percent

Elevation: 300 to 3,100 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Lorena silt loam on a 2-percent slope at an elevation of 2,050 feet; about 20 feet north and 50 feet east of the southwest corner of sec. 2, T. 3 N., R. 14 E.; latitude 45 degrees 46 minutes 3 seconds north and longitude 121 degrees 1 minute 46 seconds west.

Ap—0 to 8 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many fine roots; many fine irregular pores; slightly acid (pH 6.4); clear wavy boundary.

A—8 to 16 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many fine irregular pores; slightly acid (pH 6.4); clear smooth boundary.

BA—16 to 20 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine irregular and common fine tubular pores; neutral (pH 6.6); clear smooth boundary.

Bt1—20 to 31 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common fine roots; common fine irregular and tubular pores; few faint clay films in pores; neutral (pH 6.8); clear smooth boundary.

Bt2—31 to 36 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; common fine irregular and tubular pores; few faint clay films in pores; neutral (pH 7.0); abrupt wavy boundary.

2R—36 to 40 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—11 to 20 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—18 to 30 percent clay and 0 to 5 percent rock fragments

A and BA horizons

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—slightly acid or moderately acid

Bt1 horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Reaction—neutral or slightly acid

Bt2 horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam, loam, or clay loam

Reaction—neutral or slightly acid

Lyville Series

Depth class: Deep

Drainage class: Well drained

Position on landscape: Canyonsides

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 65 percent

Elevation: 1,200 to 2,600 feet

Mean annual precipitation: 18 to 22 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Typical pedon of Lyville bouldery loam on a 3-percent slope at an elevation of 2,100 feet; about 1,100 feet north and 1,300 feet west of the southeast corner of sec. 30, T. 5 N., R. 16 E.; latitude 45 degrees 53 minutes 12 seconds north and longitude 120 degrees 50 minutes 50 seconds west.

Oi—1 inch to 0; slightly decomposed needles, twigs, and leaves.

A1—0 to 3 inches; brown (7.5YR 5/4) bouldery loam, dark reddish brown (5YR 3/2) moist; moderate very fine granular structure; soft, friable, slightly sticky and slightly plastic; common fine and very fine roots; common very fine irregular pores; 5 percent gravel, 5 percent cobbles, and 5 percent boulders; neutral (pH 6.6); clear smooth boundary.

A2—3 to 7 inches; brown (7.5YR 5/4) bouldery loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure; soft, friable, slightly sticky and slightly plastic; common fine and very fine roots; common very fine irregular pores; 10 percent gravel, 5 percent cobbles, and 5 percent boulders; slightly acid (pH 6.4); clear smooth boundary.

AB—7 to 13 inches; brown (7.5YR 5/4) gravelly loam, dark reddish brown (5YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; many very fine irregular and few fine and very fine tubular pores; 15 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

Bw1—13 to 27 inches; brown (7.5YR 5/4) gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium and very fine roots; many very fine irregular and few very fine tubular pores; 30 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

Bw2—27 to 44 inches; brown (7.5YR 5/4) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine irregular pores; 50 percent gravel; moderately acid (pH 6.0); abrupt wavy boundary.

2R—44 to 48 inches; fractured basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—40 to 60 inches

Characteristics of particle-size control section—18 to 25 percent clay, and 20 to 35 percent rock fragments in the upper part and 45 to 60 percent rock fragments in the lower part

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—2 to 4 dry, 2 or 3 moist

Reaction—neutral or slightly acid

Bw horizon

Hue—5YR or 7.5YR

Chroma—3 or 4 dry or moist

Reaction—slightly acid or moderately acid

Malaga Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Position on landscape: Terraces

Parent material: Glacial outwash

Slope range: 0 to 15 percent

Elevation: 600 to 800 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 160 to 180 days

Typical pedon of Malaga gravelly fine sandy loam on a 4-percent slope at an elevation of 640 feet; about 1,750 feet south and 1,100 feet west of the northeast corner of sec. 34, T. 5 N., R. 23 E.; latitude 45 degrees 52 minutes 33 seconds north and longitude 119 degrees 54 minutes 44 seconds west.

A—0 to 3 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; 15 percent gravel; neutral (pH 6.6); clear smooth boundary.

Bw1—3 to 9 inches; pale brown (10YR 6/3) gravelly fine sandy loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, firm, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine irregular and common fine tubular pores; 15 percent gravel; neutral (pH 6.8); clear wavy boundary.

Bw2—9 to 17 inches; light gray (10YR 7/2) gravelly loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine and fine and common medium roots; common fine and medium tubular pores; 25 percent gravel and 5 percent cobbles; neutral (pH 7.0); gradual wavy boundary.

2C1—17 to 21 inches; light brownish gray (10YR 6/2) extremely gravelly sandy loam, brown (10YR 5/3) moist; single grain; loose; many very fine and fine and few medium roots; many fine irregular pores; 60 percent gravel and 20 percent cobbles; neutral (pH 7.2); gradual wavy boundary.

2C2—21 to 60 inches; light brownish gray (10YR 6/2) extremely gravelly loamy sand, grayish brown (10YR 5/2) moist; single grain; loose; many very fine and fine roots; many fine irregular pores; 70 percent gravel and 15 percent cobbles; neutral (pH 7.2).

Range in Characteristics

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—10 to 20 inches

Characteristics of particle-size control section—5 to 15 percent clay; 15 to 35 percent rock fragments in the upper part, 50 to 85 percent in the lower part, and 45 to 80 percent weighted average

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—3 or 4 dry, 2 or 3 moist

Reaction—slightly acid to slightly alkaline

Bw horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—gravelly sandy loam, gravelly fine sandy loam, or gravelly loam

Reaction—slightly acid to slightly alkaline

2C horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly fine sandy loam, extremely gravelly loam, or extremely gravelly sandy loam in the upper part and extremely gravelly coarse sand, very cobbly sand, or extremely gravelly loamy sand in the lower part

Calcium carbonate equivalent—0 to 3 percent

Reaction—slightly acid to moderately alkaline

Maydol Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Dissected plateaus

Parent material: Colluvium and residuum derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 5 to 30 percent

Elevation: 2,000 to 3,200 feet

Mean annual precipitation: 22 to 27 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 140 days

Typical pedon of Maydol very stony loam on a 10-percent, south-facing slope at an elevation of 2,600 feet; about 500 feet west of the northeast corner of sec. 23, T. 5 N., R. 16 E.; latitude 45 degrees 54 minutes 42 seconds north and longitude 120 degrees 45 minutes 40 seconds west.

Oi—0.5 inch to 0; slightly decomposed needles and twigs.

A—0 to 5 inches; reddish brown (5YR 5/3) very stony loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular pores; 15 percent fine gravel and 20 percent stones; neutral (pH 6.8); clear smooth boundary.

AB—5 to 13 inches; reddish brown (5YR 5/3) gravelly loam, dark reddish brown (5YR 3/3) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine irregular pores; 15 percent gravel; neutral (pH 6.8); gradual smooth boundary.

Bw1—13 to 26 inches; reddish brown (5YR 5/3) gravelly loam, dark reddish brown

(5YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine irregular pores; 20 percent gravel; slightly acid (pH 6.4); gradual smooth boundary.

Bw2—26 to 44 inches; reddish brown (5YR 5/3) gravelly loam, dark reddish brown (5YR 3/4) moist; weak fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium roots; many very fine irregular and tubular pores; 20 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

Bw3—44 to 60 inches; reddish brown (5YR 5/4) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak fine angular and subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and medium roots; few very fine irregular and common very fine tubular pores; 40 percent gravel; moderately acid (pH 5.8).

Range in Characteristics

Thickness of mollic epipedon—12 to 18 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 25 percent clay and 15 to 30 percent rock fragments

A horizon

Hue—5YR to 10YR

Value—3 to 5 dry

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly acid

Bw horizon

Hue—5YR to 10YR

Value—4 or 5 dry

Chroma—3 or 4 dry

Reaction—slightly acid or moderately acid

Mazdale Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: North-facing canyon side slopes

Parent material: Colluvium derived from basalt with an influence of volcanic ash in the upper part

Slope range: 30 to 90 percent

Elevation: 800 to 2,800 feet

Mean annual precipitation: 25 to 30 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 100 to 120 days

Typical pedon of Mazdale very stony ashy loam on a 60-percent, northwest-facing side slope at an elevation of 2,000 feet; about 2,800 feet north and 600 feet west of the southeast corner of sec. 16, T. 6 N., R. 13 E.; latitude 46 degrees 0 minutes 30 seconds north and longitude 121 degrees 10 minutes 45 seconds west.

A1—0 to 6 inches; brown (7.5YR 5/2) very stony ashy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine roots; many fine irregular pores; 15 percent gravel, 10 percent cobbles, and 12 percent stones; strongly acid (pH 5.5); clear smooth boundary.

- A2—6 to 12 inches; brown (7.5YR 5/2) gravelly ashy loam, dark brown (7.5YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; weakly smeary; many very fine and fine roots; many fine irregular and common fine tubular pores; 20 percent gravel and 5 percent cobbles; moderately acid (pH 5.8); clear wavy boundary.
- Bw1—12 to 28 inches; brown (7.5YR 5/4) cobbly loam, dark reddish brown (5YR 3/4) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine tubular pores; 15 percent gravel and 15 percent cobbles; moderately acid (pH 6.0); clear wavy boundary.
- Bw2—28 to 42 inches; light brown (7.5YR 6/4) very cobbly loam, dark reddish brown (5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common fine roots; common fine tubular pores; 20 percent gravel and 30 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.
- Bw3—42 to 60 inches; light brown (7.5YR 6/4) extremely cobbly loam, dark reddish brown (5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 20 percent gravel and 50 percent cobbles; slightly acid (pH 6.2).

Range in Characteristics

Thickness of umbric epipedon—10 to 15 inches

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—16 to 25 percent clay and 35 to 60 percent rock fragments (weighted average)

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very stony ashy loam in the upper part and gravelly ashy loam in the lower part

Reaction—moderately acid or strongly acid

Bw horizon

Hue—5YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—cobbly loam, very cobbly loam, or very gravelly loam in the upper part and very cobbly loam or extremely cobbly loam in the lower part

Reaction—slightly acid or moderately acid

McElroy Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Footslopes and backslopes of mountains

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash in the upper part

Slope range: 45 to 90 percent

Elevation: 600 to 3,000 feet

Mean annual precipitation: 45 to 65 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 100 to 130 days

Typical pedon of McElroy gravelly ashy loam on a 45-percent, east-facing slope at an elevation of 1,800 feet; about 250 feet west of the southeast corner of sec. 32, T. 4 N., R. 10 E.; latitude 45 degrees 46 minutes 58 seconds north and longitude 121 degrees 34 minutes 10 seconds west.

Oi—1.5 inches to 0; slightly decomposed needles, leaves, and twigs.

A1—0 to 5 inches; strong brown (7.5YR 5/5) gravelly ashy loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure; slightly hard, friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine roots; many fine irregular pores; 30 percent gravel; moderately acid (pH 5.9); clear smooth boundary.

A2—5 to 11 inches; strong brown (7.5YR 5/5) gravelly ashy loam, dark reddish brown (5YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine and fine roots; few very fine tubular and many fine irregular pores; 20 percent gravel; moderately acid (pH 5.6); clear wavy boundary.

2BA—11 to 23 inches; strong brown (7.5YR 5/6) gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine irregular pores; 25 percent gravel; moderately acid (pH 5.8); abrupt smooth boundary.

2Bw1—23 to 38 inches; strong brown (7.5YR 5/6) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; many fine irregular and common very fine tubular pores; 40 percent gravel and 10 percent cobbles; moderately acid (pH 5.8); clear wavy boundary.

2Bw2—38 to 60 inches; strong brown (7.5YR 5/8) very gravelly loam, brown (7.5YR 4/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few medium roots; common fine irregular and few very fine tubular pores; 45 percent gravel, 10 percent cobbles, and 10 percent saprolitic paragravel; moderately acid (pH 5.6).

Range in Characteristics

Thickness of umbric epipedon—10 to 13 inches

Thickness of volcanic ash influence—9 to 13 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 27 percent clay, 35 to 60 percent rock fragments, and 0 to 10 percent saprolitic paragravel

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—3 to 5 dry, 2 or 3 moist

Reaction—slightly acid or moderately acid

2BA horizon

Hue—7.5YR or 5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—4 to 6 dry or moist

Texture—gravelly loam or very gravelly loam

Reaction—slightly acid or moderately acid

2Bw horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 8 dry or moist

Texture—very gravelly loam, very cobbly loam, or extremely gravelly loam

Reaction—slightly acid or moderately acid

McGowan Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Plateaus

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 2 to 15 percent

Elevation: 600 to 2,600 feet

Mean annual precipitation: 35 to 45 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 120 to 140 days

Typical pedon of McGowan ashy loam on a 9-percent, southwest-facing slope at an elevation of 2,480 feet; about 800 feet north and 1,800 feet east of the southwest corner of sec. 29, T. 4 N., R. 12 E.; latitude 45 degrees 48 minutes 0 seconds north and longitude 121 degrees 20 minutes 6 seconds west.

Oi—1 inch to 0; slightly decomposed needles, twigs, and leaves.

A1—0 to 4 inches; light brown (7.5YR 6/4) ashy loam, dark brown (7.5YR 3/4) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine irregular pores; 20 percent shotlike aggregates 1 to 2 millimeters in size; moderately acid (pH 6.0); clear smooth boundary.

A2—4 to 10 inches; brown (7.5YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure parting to weak fine granular; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine irregular pores; 10 percent shotlike aggregates 1 to 2 millimeters in size; moderately acid (pH 6.0); clear smooth boundary.

BAt—10 to 15 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many fine irregular pores; 3 percent gravel; few faint clay films in pores; moderately acid (pH 5.8); clear smooth boundary.

Bt1—15 to 26 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 3/4) moist; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; many fine irregular and few fine tubular pores; 3 percent gravel; few faint clay films in pores; moderately acid (pH 5.8); gradual smooth boundary.

Bt2—26 to 42 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and few fine and coarse roots; many fine irregular pores; 5 percent gravel; few distinct clay films on faces of peds and in pores; moderately acid (pH 5.9); clear smooth boundary.

Bt3—42 to 60 inches; brown (7.5YR 5/4) clay loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; hard, firm, slightly sticky and moderately plastic; few very fine roots; many fine irregular pores; 5 percent saprolitic paragravel; few faint clay films on faces of peds and in pores; moderately acid (pH 5.8).

Range in Characteristics

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 33 percent clay and 0 to 10 percent gravel

Content of fragments below a depth of 40 inches—0 to 20 percent saprolitic paragravel and 0 to 30 percent rock fragments, including cobbles

A horizon

Hue—5YR to 10YR

Value—4 to 6 dry

Chroma—2 to 4 dry or moist

Reaction—moderately acid or strongly acid

BAt horizon

Hue—5YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—loam or clay loam

Reaction—moderately acid or strongly acid

Bt horizon

Hue—5YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—loam or clay loam ranging to gravelly clay loam below a depth of 40 inches

Reaction—moderately acid or strongly acid

Meloza Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Alluvial fans

Parent material: Fine-textured alluvium

Slope range: 2 to 15 percent

Elevation: 400 to 1,300 feet

Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 145 to 165 days

Typical pedon of Meloza clay on a 6-percent, south-facing slope at an elevation of 500 feet; about 1,120 feet west and 350 feet south of the northeast corner of sec. 23, T. 3 N., R. 20 E.; latitude 45 degrees 44 minutes 4 seconds north and longitude 120 degrees 16 minutes 14 seconds west.

A—0 to 3 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; strong thin and medium platy structure; hard, firm, very sticky and very plastic; many very fine roots; many very fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.

BAt1—3 to 9 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; strong medium angular blocky structure parting to strong medium prismatic; very hard, very firm, very sticky and very plastic; common very fine roots; common very fine tubular and few very fine irregular pores; few faint clay

films on faces of peds and lining pores; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

BAt2—9 to 18 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; strong coarse angular blocky structure parting to strong coarse prismatic; very hard, very firm, very sticky and very plastic; common very fine roots; few very fine tubular pores; few faint clay films on faces of peds and lining pores; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Bt1—18 to 27 inches; light brownish gray (2.5Y 6/2) clay, dark grayish brown (2.5Y 4/2) moist; strong medium angular blocky structure; very hard, very firm, very sticky and very plastic; common very fine roots; common very fine tubular pores; few distinct clay films on faces of peds and lining pores; 5 percent gravel; moderately alkaline (pH 8.1); clear smooth boundary.

Bt2—27 to 35 inches; light yellowish brown (2.5Y 6/3) clay, olive brown (2.5Y 4/3) moist; strong fine and medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; few distinct clay films on faces of peds and lining pores; 5 percent gravel; moderately alkaline (pH 8.4); clear smooth boundary.

Btk1—35 to 41 inches; light yellowish brown (2.5Y 6/3) clay, olive brown (2.5Y 4/3) moist; strong very fine and fine subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine roots; few very fine tubular and irregular pores; few distinct clay films on faces of peds and lining pores; 5 percent gravel; small irregular masses of segregated calcium carbonate; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Btk2—41 to 60 inches; pale yellow (2.5Y 7/3) clay, light olive brown (2.5Y 5/3) moist; massive; very hard, very firm, very sticky and very plastic; few very fine tubular and irregular pores; few distinct clay films lining pores; 5 percent gravel; small irregular masses of segregated calcium carbonate; slightly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 18 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—35 to 60 percent clay and 0 to 10 percent rock fragments

A horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—1 or 2 dry or moist

BAt horizon

Chroma—2 or 3 dry or moist

Reaction—slightly alkaline or moderately alkaline

Bt horizon

Hue—10YR or 2.5Y

Value—5 or 6 dry

Chroma—2 or 3 dry or moist

Texture—clay or silty clay

Reaction—slightly alkaline or moderately alkaline

Btk horizon

Hue—10YR or 2.5Y

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—clay loam, silty clay, or clay

Calcium carbonate equivalent—1 to 20 percent

Mikkalo Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus and canyon shoulder slopes

Parent material: Loess over basalt

Slope range: 0 to 30 percent

Elevation: 300 to 2,800 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 180 days

Typical pedon of Mikkalo silt loam on a 3-percent slope at an elevation of 1,200 feet; about 400 feet south and 500 feet west of the northeast corner of sec. 20, T. 6 N., R. 23 E.; latitude 45 degrees 59 minutes 46 seconds north and longitude 119 degrees 57 minutes 4 seconds west.

- A1—0 to 3 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular and few fine irregular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
- A2—3 to 8 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.
- BA—8 to 15 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.
- Bw—15 to 26 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; common fine tubular pores; 5 percent gravel 2 to 5 millimeters in diameter; slightly alkaline (pH 7.6); clear wavy boundary.
- Bk1—26 to 31 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; few fine tubular pores; 5 percent gravel 2 to 5 millimeters in diameter; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.
- Bk2—31 to 38 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and nonplastic; few fine roots; few fine tubular pores; 5 percent gravel 2 to 5 millimeters in diameter; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.
- 2R—38 to 42 inches; basalt coated with calcium carbonate.

Range in Characteristics

Thickness of mollic epipedon—10 to 16 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—8 to 12 percent clay and 0 to 5 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Bk horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Calcium carbonate equivalent—5 to 15 percent

Reaction—moderately alkaline or strongly alkaline

Mondovi Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Flood plains and drainageways

Parent material: Alluvium derived from loess

Slope range: 0 to 2 percent

Elevation: 1,500 to 1,800 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 160 days

Typical pedon of Mondovi silt loam on a 2-percent slope at an elevation of 1,600 feet; about 50 feet south and 2,300 feet west of the northeast corner of sec. 23, T. 3 N., R. 15 E.; latitude 45 degrees 44 minutes 14 seconds north and longitude 120 degrees 53 minutes 36 seconds west.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine and common medium roots; many fine and medium irregular pores; slightly acid (pH 6.2); abrupt smooth boundary.

A1—6 to 14 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common fine and medium tubular pores; neutral (pH 6.6); abrupt smooth boundary.

A2—14 to 23 inches; very dark grayish brown (10YR 3/2) silt loam, black (10YR 2/1) moist; weak thin and medium platy structure; hard, friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine and medium tubular pores; neutral (pH 6.6); clear smooth boundary.

A3—23 to 37 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine and medium tubular pores; neutral (pH 6.8); gradual smooth boundary.

A4—37 to 60 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; hard, firm, nonsticky and slightly plastic; common very fine and fine roots; common fine and medium tubular pores; neutral (pH 7.0).

Range in Characteristics

Thickness of mollic epipedon—40 to 60 inches or more

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—10 to 18 percent clay and 0 to 3 percent rock fragments

Flooding—may occur in winter to early in spring

Ap horizon

Chroma—1 or 2 dry or moist

Reaction—neutral or slightly acid

A horizon

Value to a depth of 40 inches—3 or 4 dry, 2 or 3 moist

Value below a depth of 40 inches—3 to 5 dry

Chroma—1 to 3 dry or moist

Morrow Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Elevation: 1,800 to 3,100 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 155 days

Typical pedon of Morrow silt loam on a 2-percent slope at an elevation of 2,650 feet; about 1,180 feet south and 100 feet west of the northeast corner of sec. 12, T. 5 N., R. 20 E.; latitude 45 degrees 56 minutes 9 seconds north and longitude 120 degrees 14 minutes 27 seconds west.

A1—0 to 2 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; neutral (pH 6.8); abrupt smooth boundary.

A2—2 to 9 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine and fine and common medium tubular pores; neutral (pH 7.0); clear wavy boundary.

AB—9 to 16 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; many very fine and fine and common medium tubular pores; neutral (pH 7.0); clear wavy boundary.

2Bt1—16 to 22 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; common very fine and fine roots; many very fine and fine and common medium tubular pores; few faint clay films; neutral (pH 7.2); gradual wavy boundary.

2Bt2—22 to 31 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; common very fine and fine roots; many very fine and fine and common medium tubular pores; few faint clay films; moderately alkaline (pH 8.0); clear smooth boundary.

2Bk—31 to 38 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine and few medium tubular pores; 10 percent gravel;

strongly effervescent, calcium carbonate segregated in few fine filaments;
strongly alkaline (pH 8.6); abrupt smooth boundary.
3R—38 to 42 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches
Depth to bedrock—20 to 40 inches
Content of clay in particle-size control section—24 to 35 percent

A horizon

Value—4 or 5 dry, 2 or 3 moist

2Bt horizon

Value—4 or 5 dry, 2 to 4 moist
Chroma—3 or 4 dry or moist
Texture—silt loam or silty clay loam
Reaction—neutral to moderately alkaline

2Bk horizon

Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—silt loam or silty clay loam
Calcium carbonate equivalent—15 to 35 percent
Reaction—moderately alkaline or strongly alkaline

Moxee Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: Terraces

Parent material: Loess

Slope range: 2 to 15 percent

Elevation: 800 to 1,500 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 140 to 160 days

Typical pedon of Moxee very fine sandy loam on a 2-percent slope at an elevation of 1,045 feet; about 1,200 feet north and 1,250 feet east of the southwest corner of sec. 18, T. 3 N., R. 20 E.; latitude 45 degrees 44 minutes 20 seconds north and longitude 120 degrees 21 minutes 40 seconds west.

Ap—0 to 5 inches; yellowish brown (10YR 5/4) very fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores; 12 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

A—5 to 9 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine tubular pores; 12 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.

Bw—9 to 11 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; few fine tubular pores; 12 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

2Bkqm—11 inches; duripan cemented with calcium carbonate and silica.

Range in Characteristics

Thickness of mollic epipedon—7 to 10 inches

Depth to duripan—10 to 20 inches

Characteristics of particle-size control section—5 to 10 percent clay and 10 to 30 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 to 4 dry, 2 or 3 moist

Texture—silt loam or gravelly silt loam in the lower part

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam or gravelly silt loam

Reaction—slightly alkaline or moderately alkaline

2Bk horizon, where present

Value—5 to 7 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—silt loam or gravelly silt loam

Calcium carbonate equivalent—5 to 15 percent

Reaction—slightly alkaline or moderately alkaline

2Bkqm horizon

Value—5 to 8 dry, 3 to 6 moist

Chroma—1 to 4 dry or moist

Munset Series

Depth class: Moderately deep

Drainage class: Poorly drained

Position on landscape: Depressions of plateaus

Parent material: Alluvium mixed with loess and residuum derived from basalt

Slope range: 0 to 10 percent

Elevation: 1,100 to 2,900 feet

Mean annual precipitation: 15 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 150 days

Typical pedon of Munset stony silt loam on a 1-percent, south-facing slope at an elevation of 2,450 feet; about 1,000 feet south and 1,000 feet east of the northwest corner of sec. 26, T. 5 N., R. 17 E.; latitude 45 degrees 53 minutes 40 seconds north and longitude 120 degrees 39 minutes 0 seconds west.

A—0 to 2 inches; grayish brown (10YR 5/2) stony silt loam, dark brown (7.5YR 3/2) moist; weak medium platy structure and weak fine granular; slightly hard, friable, slightly sticky and moderately plastic; many very fine roots; common very fine irregular and tubular pores; 15 percent stones and 3 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

E1—2 to 10 inches; light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; weak thin and medium platy structure; hard, friable, moderately sticky and moderately plastic; many very fine roots; common very fine irregular and tubular pores; 3 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

E2—10 to 16 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown

(10YR 4/2) moist; weak thin platy structure and weak fine subangular blocky; very hard, friable, moderately sticky and moderately plastic; few fine roots; common very fine irregular and tubular pores; 3 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

Bt—16 to 22 inches; brown (7.5YR 5/4) gravelly clay, brown (7.5YR 4/4) moist; few fine distinct reddish yellow (7.5YR 6/6) redoximorphic concentrations; weak medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few fine roots; few very fine irregular pores; common distinct thick clay films on faces of peds; 15 percent gravel; moderately acid (pH 6.0); clear smooth boundary.

C—22 to 25 inches; reddish yellow (7.5YR 6/6) and pinkish gray (7.5YR 6/2) extremely gravelly sandy clay loam, strong brown (7.5YR 5/6) and brown (7.5YR 4/2) moist; massive; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine irregular pores; 65 percent gravel; moderately acid (pH 5.9); abrupt smooth boundary.

R—25 to 29 inches; fractured basalt.

Range in Characteristics

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—50 to 60 percent clay and 5 to 30 percent rock fragments

Water table—may be present in winter to late in summer

Ponding—may occur early in spring

A horizon

Reaction—slightly acid or moderately acid

E horizon

Hue—7.5YR or 10YR

Value—6 or 7 dry

Texture—silty clay loam or clay loam

Reaction—slightly acid or moderately acid

Bt horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—gravelly clay or clay

C horizon

Texture—very gravelly sandy clay loam or extremely gravelly sandy clay loam

Nansene Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Loess

Slope range: 5 to 15 percent

Elevation: 700 to 1,700 feet

Mean annual precipitation: 11 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 135 to 170 days

Typical pedon of Nansene silt loam on a 12-percent, northeast-facing slope at an elevation of 1,540 feet; about 2,150 feet south and 1,790 feet west of the northeast corner of sec. 12, T. 3 N., R. 20 E.; latitude 45 degrees 45 minutes 30 seconds north and longitude 120 degrees 14 minutes 55 seconds west.

- A1—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak thin platy structure and weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.
- A2—3 to 11 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; very weak thick platy structure and weak fine and medium granular; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; many very fine irregular pores; slightly alkaline (pH 7.8); clear smooth boundary.
- A3—11 to 18 inches; dark brown (10YR 4/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure parting to weak medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.
- Bw1—18 to 32 inches; brown (10YR 4/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many fine tubular pores; slightly alkaline (pH 7.8); gradual smooth boundary.
- Bw2—32 to 50 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.
- Bk—50 to 60 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Thickness of mollic epipedon—30 to 50 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—10 to 18 percent clay and 0 to 3 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry, 1 or 2 moist

Reaction—slightly acid to slightly alkaline

Bw horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—slightly acid to slightly alkaline

Bk horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Calcium carbonate equivalent—1 to 5 percent

Reaction—neutral to moderately alkaline

Niva Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: Terraces and terrace escarpments

Parent material: Alluvium over a duripan

Slope range: 5 to 30 percent

Elevation: 1,550 to 1,900 feet

Mean annual precipitation: 15 to 17 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Niva silt loam on a 10-percent, southwest-facing slope at an elevation of 1,615 feet; about 1,000 feet south and 1,000 feet west of the northeast corner of sec. 11, T. 3 N., R. 15 E.; latitude 45 degrees 45 minutes 52 seconds north and longitude 120 degrees 53 minutes 10 seconds west.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine and fine irregular pores; slightly acid (pH 6.4); abrupt smooth boundary.

Bt—7 to 12 inches; brown (10YR 5/3) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common fine tubular pores; common distinct clay films on faces of peds and in pores; slightly acid (pH 6.2); clear smooth boundary.

Btc—12 to 17 inches; brown (10YR 4/3) silty clay loam, dark brown (10YR 4/3) moist; moderate fine and medium angular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine roots; few fine tubular pores; common distinct clay films on faces of peds and in pores; many black manganese concretions; neutral (pH 7.2); abrupt smooth boundary.

2Bkqm1—17 to 21 inches; duripan cemented with calcium carbonate and silica; common prominent clay films in cracks and pores; common medium platelike carbonates; clear wavy boundary.

2Bkqm2—21 inches; impenetrable indurated duripan.

Range in Characteristics

Thickness of mollic epipedon—7 to 18 inches

Depth to duripan—14 to 20 inches

Characteristics of particle-size control section—35 to 40 percent clay and 0 to 5 percent rock fragments

Ap horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bt horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—clay loam or silty clay loam

Reaction—neutral or slightly acid

Btc horizon

Value—4 to 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—clay loam or silty clay loam

Reaction—neutral or slightly acid

Nook Series

Depth class: Very deep

Drainage class: Moderately well drained

Position on landscape: Alluvial fans and low terraces

Parent material: Alluvium derived from basalt and loess with a minor influence of volcanic ash

Slope range: 0 to 5 percent

Elevation: 800 to 3,700 feet

Mean annual precipitation: 20 to 24 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 100 to 140 days

Typical pedon of Nook silt loam on a 3-percent slope at an elevation of 2,160 feet; about 1,000 feet south and 500 feet east of the northwest corner of sec. 19, T. 5 N., R. 17 E.; latitude 45 degrees 54 minutes 34 seconds north and longitude 120 degrees 44 minutes 14 seconds west.

A1—0 to 10 inches; dark brown (7.5YR 4/3) silt loam, dark reddish brown (5YR 3/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few medium roots; many very fine irregular pores; 3 percent gravel; neutral (pH 6.6); gradual smooth boundary.

A2—10 to 25 inches; dark brown (7.5YR 4/3) loam, dark reddish brown (5YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; many very fine roots; many very fine irregular pores; 3 percent gravel; neutral (pH 6.6); gradual smooth boundary.

Bw1—25 to 35 inches; brown (7.5YR 5/3) loam, dark reddish brown (5YR 3/4) moist; few fine distinct redoximorphic concentrations that are yellowish red (5YR 5/6), reddish brown (5YR 5/4) moist; weak very fine subangular blocky structure; hard, firm, slightly sticky and moderately plastic; few fine roots; many very fine irregular and few fine tubular pores; 10 percent gravel; neutral (pH 6.6); clear smooth boundary.

Bw2—35 to 60 inches; brown (7.5YR 5/4) loam, dark reddish brown (5YR 3/4) moist; few fine distinct redoximorphic concentrations that are yellowish red (5YR 5/6), yellowish red (5YR 4/6) moist; weak very fine and fine angular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine roots; common very fine irregular pores; 10 percent gravel; slightly acid (pH 6.4).

Range in Characteristics

Thickness of mollic epipedon—20 to 30 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 25 percent clay and 0 to 10 percent rock fragments

Water table—may be present in winter and early in spring

Flooding—may occur late in winter and early in spring

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—loam or silt loam in the lower part

Reaction—neutral or slightly acid

Bw horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist
 Reaction—neutral or slightly acid

Olex Series

Depth class: Very deep
Drainage class: Well drained
Position on landscape: Terraces and terrace escarpments
Parent material: Loess over gravelly alluvium
Slope range: 2 to 40 percent
Elevation: 300 to 1,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 160 to 180 days

Typical pedon of Olex silt loam on an 8-percent, southwest-facing slope at an elevation of 1,040 feet; about 600 feet south and 1,600 feet east of the northwest corner of sec. 8, T. 3 N., R. 20 E.; latitude 45 degrees 45 minutes 45 seconds north and longitude 120 degrees 20 minutes 18 seconds west.

- A1—0 to 5 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; many fine irregular pores; 5 percent gravel; neutral (pH 6.0); abrupt smooth boundary.
- A2—5 to 10 inches; brown (10YR 4/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and common fine and medium roots; common fine tubular pores; 5 percent gravel; neutral (pH 7.0); clear wavy boundary.
- Bw—10 to 16 inches; dark yellowish brown (10YR 4/4) silt loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine and medium roots; common fine and medium tubular pores; 10 percent gravel; neutral (pH 6.8); clear smooth boundary.
- 2C—16 to 25 inches; dark yellowish brown (10YR 4/4) extremely gravelly silt loam, dark brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; common fine tubular and many fine irregular pores; 65 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.4); clear wavy boundary.
- 2Ck1—25 to 33 inches; light olive brown (2.5Y 5/4) extremely gravelly loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many fine and medium irregular pores; 75 percent gravel and 10 percent cobbles; slightly effervescent; coatings of calcium carbonate on underside of rock fragments; slightly alkaline (pH 7.4); clear wavy boundary.
- 2Ck2—33 to 60 inches; pale yellow (2.5Y 7/4) extremely gravelly loam, olive brown (2.5Y 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine roots; 75 percent gravel and 5 percent cobbles; slightly effervescent; soft powdered calcium carbonate in matrix; slightly alkaline (pH 7.4).

Range in Characteristics

Thickness of mollic epipedon—7 to 15 inches
 Depth to bedrock—more than 60 inches
 Characteristics of particle-size control section—15 to 18 percent clay and 35 to 85 percent rock fragments

A horizon

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—silt loam or very cobbly silt loam

Bw horizon

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—gravelly silt loam or silt loam

2C horizon

Hue—10YR or 2.5Y

Value—4 to 7 dry

Chroma—3 or 4 dry or moist

Texture—extremely gravelly loam, very gravelly silt loam, or extremely gravelly silt loam

Reaction—slightly alkaline or moderately alkaline

2Ck horizon

Calcium carbonate equivalent—10 to 15 percent

Onyx Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Flood plains

Parent material: Alluvium

Slope range: 0 to 2 percent

Elevation: 400 to 3,400 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 120 to 140 days

Typical pedon of Onyx silt loam on a 1-percent slope at an elevation of 2,840 feet; about 250 feet south and 1,600 feet east of the northwest corner of sec. 23, T. 6 N., R. 20 E.; latitude 45 degrees 49 minutes 48 seconds north and longitude 120 degrees 16 minutes 33 seconds west.

- A—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; weak fine granular structure and weak medium prismatic; soft, friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common fine irregular and few fine tubular pores; neutral (pH 6.6); clear smooth boundary.
- Bk—8 to 21 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine and medium prismatic structure; soft, friable, slightly sticky and nonplastic; many very fine and fine roots; common fine and medium tubular pores; slightly effervescent, calcium carbonate segregated in few fine irregularly shaped filaments; slightly alkaline (pH 7.8); clear wavy boundary.
- Bw1—21 to 32 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine and medium prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine and medium tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.
- Bw2—32 to 49 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine and medium tubular pores; neutral (pH 7.2); clear smooth boundary.

C—49 to 60 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; many fine and medium tubular pores; 25 percent gravel; neutral (pH 7.2).

Range in Characteristics

Thickness of mollic epipedon—20 to 40 inches or more
 Depth to bedrock—more than 60 inches
 Content of clay in particle-size control section—10 to 18 percent
 Flooding—may occur late in winter to early in spring

A horizon

Value—4 or 5 dry, 2 or 3 moist
 Chroma—1 to 3 dry or moist
 Reaction—neutral or slightly alkaline

B horizon

Value—4 or 5 dry, 2 or 3 moist
 Chroma—2 or 3 dry or moist
 Calcium carbonate equivalent—0 to 3 percent in the upper part
 Reaction—neutral or slightly alkaline

C horizon

Value—5 or 6 dry, 3 or 4 moist
 Chroma—2 or 3 dry or moist
 Texture—silt loam, loam, or fine sandy loam
 Reaction—neutral or slightly alkaline

Oreoke Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides and hillslopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 75 percent

Elevation: 100 to 3,000 feet

Mean annual precipitation: 15 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Oreoke stony silt loam on a 65-percent, southeast-facing slope at an elevation of 1,200 feet; about 2,580 feet south and 200 feet east of the northwest corner of sec. 28, T. 4 N., R. 13 E.; latitude 45 degrees 48 minutes 15 seconds north and longitude 121 degrees 11 minutes 36 seconds west.

A1—0 to 5 inches; brown (7.5YR 4/2) stony silt loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many fine irregular pores; 15 percent gravel and 5 percent stones; slightly acid (pH 6.4); clear smooth boundary.

A2—5 to 15 inches; brown (7.5YR 5/2) gravelly silt loam, dark brown (7.5YR 3/2) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; common fine irregular and tubular pores; 15 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.

AB—15 to 22 inches; brown (7.5YR 5/3) very gravelly silt loam, dark brown (7.5YR

3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common fine and medium tubular pores; 40 percent gravel and 10 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.

Bt1—22 to 42 inches; brown (7.5YR 5/4) very gravelly clay loam, dark brown (7.5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; common fine and medium tubular pores; common faint clay films on faces of peds and in pores; 45 percent gravel, 10 percent cobbles, and 5 percent stones; slightly acid (pH 6.2); clear wavy boundary.

Bt2—42 to 60 inches; dark yellowish brown (10YR 4/4) extremely gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and medium roots; few fine tubular pores; common distinct clay films on faces of peds and in pores; 50 percent gravel, 20 percent cobbles, and 5 percent stones; moderately acid (pH 6.0).

Range in Characteristics

Thickness of mollic epipedon—20 to 30 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—25 to 35 percent clay; 50 to 75 percent rock fragments (weighted average)

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—slightly acid or moderately acid

AB horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry

Texture—very gravelly loam or very gravelly silt loam

Reaction—slightly acid or moderately acid

Bt horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry

Chroma—3 to 6 dry or moist

Texture—extremely gravelly loam, very gravelly clay loam, or extremely gravelly clay loam

Reaction—neutral to moderately acid

Oxy Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Flood plains along narrow drainageways

Parent material: Alluvium derived from loess over basalt

Slope range: 0 to 2 percent

Elevation: 1,400 to 3,200 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free period: 130 to 150 days

Typical pedon of Oxy silt loam on a 2-percent slope at an elevation of 2,550 feet; about 500 feet north and 50 feet east of the southwest corner of sec. 13, T. 5 N., R. 20 E.; latitude 45 degrees 54 minutes 44 seconds north and longitude 120 degrees 15 minutes 39 seconds west.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; weak fine granular structure, soft, very friable, slightly sticky and nonplastic; many very fine and common fine roots; many fine tubular pores; 10 percent gravel; neutral (pH 6.8); clear smooth boundary.

A2—7 to 17 inches; dark grayish brown (10YR 4/2) gravelly silt loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and fine roots; few very fine and fine tubular pores; 25 percent gravel; neutral (pH 7.2); clear wavy boundary.

C—17 to 21 inches; grayish brown (10YR 5/2) gravelly silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine roots; few fine tubular pores; 25 percent gravel; slightly alkaline (pH 7.6); abrupt wavy boundary.

2R—21 to 25 inches; fractured basalt.

Range in Characteristics

Thickness of mollic epipedon—20 to 40 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—18 to 30 percent clay and 15 to 30 percent rock fragments

Flooding—may occur late in winter to early in spring

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

C horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—gravelly silt loam, gravelly sandy loam, or gravelly clay loam

Reaction—neutral or slightly alkaline

Panak Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Mountain summits and backslopes

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 5 to 65 percent

Elevation: 2,000 to 3,000 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 44 to 46 degrees F

Frost-free period: 90 to 110 days

Typical pedon of Panak ashy loam on a 15-percent, northwest-facing mountain summit at an elevation of 2,440 feet; about 1,100 feet north and 100 feet east of the southwest corner of sec. 10, T. 5 N., R. 12 E.; latitude 45 degrees 55 minutes 53 seconds north and longitude 121 degrees 18 minutes 0 seconds west.

A—0 to 7 inches; reddish brown (5YR 5/3) ashy loam, dark reddish brown (5YR 3/3)

moist; moderate fine granular structure; soft, very friable, nonsticky and slightly plastic; weakly smeary; common very fine and fine roots; many fine irregular pores; moderately acid (pH 6.0); clear wavy boundary.

BA—7 to 19 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine irregular and common fine tubular pores; slightly acid (pH 6.2); clear wavy boundary.

Bt1—19 to 31 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 3/4) moist; moderate fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common fine and medium tubular pores; few distinct clay films on faces of peds; 5 percent gravel; slightly acid (pH 6.4); abrupt wavy boundary.

Bt2—31 to 42 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; few fine tubular pores; common distinct clay films on faces of peds and in pores; 5 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

Bt3—42 to 60 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; few fine tubular pores; many distinct clay films on faces of peds and in pores; 15 percent gravel and 5 percent cobbles; slightly acid (pH 6.4).

Range in Characteristics

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 30 percent clay, 0 to 40 percent pararock fragments, and 0 to 20 percent rock fragments

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—ashy loam or cobbly ashy loam

Reaction—slightly acid or moderately acid

BA horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—loam or silt loam

Reaction—slightly acid or moderately acid

Bt horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—loam, clay loam, gravelly clay loam, or very paragravelly clay loam

Reaction—slightly acid or moderately acid

Pird Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash

Slope range: 8 to 60 percent

Elevation: 4,000 to 5,900 feet

Mean annual precipitation: 30 to 40 inches

Mean annual air temperature: 36 to 42 degrees F

Frost-free period: 40 to 70 days

Typical pedon of Pird gravelly ashy loam on a 43-percent, southeast-facing backslope at an elevation of 4,680 feet; about 2,500 feet south of the northeast corner of sec. 28, T. 6 N., R. 16 E.; latitude 45 degrees 58 minutes 34 seconds north and longitude 120 degrees 48 minutes 38 seconds west.

Oi—1 inch to 0; slightly decomposed needles and twigs.

A1—0 to 5 inches; dark brown (7.5YR 4/2) gravelly ashy loam, dark reddish brown (5YR 3/2) moist; weak very fine granular structure; soft, friable, slightly sticky and slightly plastic; weakly smeary; many very fine roots; many very fine irregular pores; 20 percent gravel; moderately acid (pH 5.8); clear wavy boundary.

A2—5 to 9 inches; dark brown (7.5YR 4/2) gravelly ashy loam, dark reddish brown (5YR 3/2) moist; weak very fine granular structure; soft, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and few medium roots; many very fine irregular pores; 20 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

AB—9 to 24 inches; brown (10YR 5/3) very gravelly ashy loam, dark brown (7.5YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine roots; many very fine irregular pores; 35 percent gravel; moderately acid (pH 5.6); clear wavy boundary.

Bw—24 to 41 inches; light yellowish brown (10YR 6/4) very gravelly ashy loam, brown (7.5YR 4/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine roots; many very fine irregular pores; 40 percent gravel; slightly acid (pH 6.2); clear wavy boundary.

BC—41 to 60 inches; light yellowish brown (10YR 6/4) very gravelly ashy loam, dark yellowish brown (10YR 4/4) moist; weak very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine irregular pores; 40 percent gravel and 5 percent cobbles; slightly acid (pH 6.2).

Range in Characteristics

Thickness of volcanic ash influence—more than 40 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—7 to 15 percent clay and 35 to 50 percent rock fragments

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 to 4 dry or moist

Bw horizon

Hue—5YR to 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Reaction—slightly acid to strongly acid

BC horizon

Hue—5YR to 10YR

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly ashy loam or extremely gravelly ashy loam

Reaction—slightly acid to strongly acid

Presher Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Plateaus and footslopes of mountains

Parent material: Colluvium and residuum derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 30 percent

Elevation: 2,000 to 3,300 feet

Mean annual precipitation: 25 to 30 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 100 to 120 days

Typical pedon of Presher cobbly loam on a 3-percent slope at an elevation of 2,650 feet; about 1,500 feet south and 1,000 feet east of the northwest corner of sec. 4, T. 5 N., R. 15 E.; latitude 45 degrees 56 minutes 10 seconds north and longitude 120 degrees 57 minutes 4 seconds west.

Oi—1 inch to 0; slightly decomposed needles and twigs.

A—0 to 6 inches; brown (7.5YR 5/3) cobbly loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common fine and few medium roots; many very fine irregular pores; 15 percent gravel and 12 percent cobbles; slightly acid (pH 6.2); clear smooth boundary.

BA—6 to 18 inches; light brown (7.5YR 6/4) gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; many fine tubular and many very fine irregular pores; 15 percent gravel; moderately acid (pH 6.0); gradual smooth boundary.

Bw1—18 to 36 inches; light brown (7.5YR 6/4) loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few medium and fine roots; many fine tubular and many very fine irregular pores; 10 percent gravel; moderately acid (pH 6.0); gradual smooth boundary.

Bw2—36 to 52 inches; light reddish brown (5YR 6/4) loam, dark reddish brown (5YR 3/4) moist; weak fine angular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine roots; many fine tubular and many very fine irregular pores; 10 percent gravel; moderately acid (pH 5.8); gradual smooth boundary.

Bw3—52 to 60 inches; brown (7.5YR 5/4) gravelly loam, reddish brown (5YR 4/4) moist; weak very fine angular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine roots; many fine tubular and many very fine irregular pores; 20 percent gravel; moderately acid (pH 5.8).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 24 percent clay; 10 to 20

percent rock fragments, ranging to more than 35 percent below a depth of 40 inches

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—cobbly loam or stony loam

BA horizon

Hue—5YR or 7.5YR

Value—3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—gravelly loam or cobbly loam

Reaction—slightly acid or moderately acid

Bw horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—loam or gravelly loam

Reaction—slightly acid or moderately acid

Prosser Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus

Parent material: Loess over basalt

Slope range: 2 to 15 percent

Elevation: 300 to 1,600 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 150 to 210 days

Typical pedon of Prosser silt loam on a 3-percent slope at an elevation of 1,175 feet; about 2,600 feet north and 100 feet east of the southwest corner of sec. 27, T. 5 N., R. 22 E.; latitude 45 degrees 53 minutes 12 seconds north and longitude 120 degrees 3 minutes 10 seconds west.

A—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular pores and common fine tubular pores; neutral (pH 6.8); clear smooth boundary.

Bw1—4 to 14 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and common fine roots; common fine tubular pores; slightly alkaline (pH 7.4); gradual wavy boundary.

Bw2—14 to 20 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; common very fine roots; few fine tubular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Bk—20 to 32 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many fine tubular pores; 10 percent fine gravel; slightly

effervescent, disseminated calcium carbonate; moderately alkaline (pH 8.0); abrupt wavy boundary.
2R—32 to 36 inches; basalt with discontinuous coatings of calcium carbonate and silica.

Range in Characteristics

Depth to bedrock—20 to 40 inches
Characteristics of particle-size control section—5 to 12 percent clay and 0 to 12 percent rock fragments

A horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4 dry or moist
Texture—silt loam or very fine sandy loam
Calcium carbonate equivalent—1 to 15 percent

Quiden Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Plateaus and benches

Parent material: Residuum derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 2 to 20 percent

Elevation: 1,700 to 2,800 feet

Mean annual precipitation: 20 to 25 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 115 to 135 days

Typical pedon of Quiden stony loam on a 10-percent, southeast-facing slope at an elevation of 2,200 feet; about 1,500 feet north and 1,100 feet west of the southeast corner of sec. 13, T. 5 N., R. 14 E.; latitude 45 degrees 55 minutes 0 seconds north and longitude 120 degrees 59 minutes 27 seconds west.

Oi—1 inch to 0; undecomposed and slightly decomposed needles, leaves, and twigs.
A—0 to 4 inches; brown (7.5YR 5/4) stony loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine irregular pores; 10 percent gravel and 5 percent stones; slightly acid (pH 6.4); clear wavy boundary.
AB—4 to 14 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine irregular and few very fine tubular pores; 5 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

- Bt1—14 to 27 inches; light brown (7.5YR 6/4) gravelly loam, brown (7.5YR 4/4) moist; weak fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine irregular and fine tubular pores; few faint clay films in pores; 15 percent gravel; slightly acid (pH 6.3); clear smooth boundary.
- Bt2—27 to 51 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine irregular and few very fine tubular pores; 5 percent gravel; few distinct clay films on faces of peds and in pores; slightly acid (pH 6.4); clear wavy boundary.
- Bt3—51 to 60 inches; light brown (7.5YR 6/4) gravelly loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine irregular pores; few distinct clay films on faces of peds and in pores; 30 percent gravel; slightly acid (pH 6.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 25 percent clay and 10 to 20 percent rock fragments

A and AB horizons

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—2 or 3 moist, 2 to 4 dry

Texture of AB horizon—loam or gravelly loam

Bt horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Texture—loam or gravelly loam

Quincy Series

Depth class: Very deep

Drainage class: Excessively drained

Position on landscape: Dunes and terraces

Parent material: Eolian sand deposits

Slope range: 0 to 60 percent

Elevation: 150 to 1,300 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Typical pedon of Quincy loamy sand on a 5-percent, northwest-facing slope at an elevation of 590 feet; about 1,000 feet north and 70 feet west of the southeast corner of sec. 25, T. 5 N., R. 23 E.; latitude 45 degrees 53 minutes 2 seconds north and longitude 119 degrees 52 minutes 3 seconds west.

- C1—0 to 27 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 3/3) moist; single grain; loose; many very fine and common fine and medium roots; many fine irregular pores; 2 percent gravel 2 to 5 millimeters in diameter; slightly alkaline (pH 7.6); abrupt smooth boundary.
- C2—27 to 60 inches; light brownish gray (10YR 6/2) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose; few very fine and fine roots; many fine

irregular pores; 5 percent gravel 2 to 10 millimeters in diameter; strongly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—0 to 5 percent clay and 0 to 5 percent fine gravel

C1 horizon

Texture—loamy sand, sand, or fine sand

Reaction—slightly acid to slightly alkaline

C2 horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—loamy fine sand, loamy sand, or sand

Calcium carbonate equivalent—0 to 3 percent

Reaction—neutral to moderately alkaline

Quinton Series

Depth class: Moderately deep

Drainage class: Excessively drained

Position on landscape: Terraces

Parent material: Eolian sand deposits

Slope range: 2 to 10 percent

Elevation: 300 to 800 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 160 to 180 days

Typical pedon of Quinton fine sand on a 2-percent slope at an elevation of 720 feet; about 500 feet east of the southwest corner of sec. 1, T. 4 N., R. 23 E.; latitude 45 degrees 51 minutes 6 seconds north and longitude 119 degrees 53 minutes 7 seconds west.

C1—0 to 4 inches; brown (10YR 5/3) fine sand, dark brown (10YR 3/3) moist; single grain; loose; many very fine and fine roots; many fine irregular pores; 5 percent gravel; neutral (pH 7.0); clear smooth boundary.

C2—4 to 12 inches; pale brown (10YR 6/3) fine sand, dark brown (10YR 3/3) moist; single grain; loose, very friable; many very fine and fine roots; common fine irregular pores; 5 percent gravel; neutral (pH 7.0); gradual wavy boundary.

C3—12 to 23 inches; pale brown (10YR 6/3) fine sand, dark brown (10YR 4/3) moist; single grain; loose, very friable; common very fine and fine roots; common fine irregular pores; 5 percent gravel; neutral (pH 7.2); abrupt irregular boundary.

C4—23 to 30 inches; pale brown (10YR 6/3) gravelly loamy fine sand, dark brown (10YR 4/3) moist; single grain; loose, very friable; few very fine and fine roots; common fine tubular pores; 10 percent gravel and 5 percent cobbles; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

2R—30 to 34 inches; basalt.

Range in Characteristics

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—0 to 5 percent clay and 0 to 20 percent rock fragments

C horizon

Hue—10YR or 2.5Y

Value—4 to 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—fine sand in the upper part and gravelly loamy fine sand or sand in the lower part

Reaction—neutral to moderately alkaline

Ralls Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes and canyon side slopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 90 percent

Elevation: 400 to 2,700 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Typical pedon of Ralls stony silt loam on a 30-percent, north-facing slope at an elevation of 1,450 feet; about 1,250 feet south and 300 feet west of the northeast corner of sec. 35, T. 5 N., R. 21 E.; latitude 45 degrees 52 minutes 38 seconds north and longitude 120 degrees 8 minutes 15 seconds west.

- A1—0 to 5 inches; brown (10YR 5/3) stony silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; common fine irregular pores; 10 percent gravel and 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.
- A2—5 to 17 inches; brown (10YR 5/3) silt loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.6); clear wavy boundary.
- Bt1—17 to 25 inches; yellowish brown (10YR 5/4) gravelly silt loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; common fine and medium tubular pores; common faint clay films on peds and in pores; 20 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.
- Bt2—25 to 36 inches; yellowish brown (10YR 5/4) gravelly silt loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common fine and medium tubular pores; common distinct clay films on peds and in pores; 20 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.8); clear wavy boundary.
- Bk—36 to 47 inches; light yellowish brown (10YR 6/4) gravelly silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and nonplastic; few fine roots; many fine and medium tubular pores; fine rounded filaments of segregated calcium carbonate; 20 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.2); abrupt wavy boundary.
- C—47 to 60 inches; very pale brown (10YR 7/3) very gravelly silt loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, firm, slightly sticky and nonplastic; few fine roots; many fine and medium tubular pores; 50 percent gravel; coarse

irregular masses of segregated calcium carbonate; slightly effervescent; moderately alkaline (pH 8.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 17 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 35 percent clay and 15 to 35 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—stony silt loam in the upper part and silt loam or gravelly silt loam in the lower part

Reaction—slightly alkaline or moderately alkaline

Bt horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam, gravelly clay loam, or gravelly silt loam

Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—5 or 6 dry

Chroma—3 or 4 dry or moist

Texture—gravelly clay loam or gravelly silt loam

Calcium carbonate equivalent—1 to 5 percent

Reaction—moderately alkaline or strongly alkaline

C horizon

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly silt loam or very gravelly clay loam

Calcium carbonate equivalent—1 to 5 percent

Reaction—moderately alkaline or strongly alkaline

Reilloc Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: Plateaus

Parent material: Old alluvium and residuum derived from basalt

Slope range: 2 to 15 percent

Elevation: 2,600 to 3,800 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 47 to 49 degrees F

Frost-free period: 120 to 170 days

Typical pedon of Reilloc stony silt loam on a 2-percent slope at an elevation of 3,020 feet; about 1,500 feet south and 1,650 feet east of the northwest corner of sec. 1, T. 6 N., R. 20 E.; latitude 46 degrees 2 minutes 15 seconds north and longitude 120 degrees 15 minutes 14 seconds west.

A1—0 to 3 inches; brown (10YR 5/3) stony silt loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, friable, nonsticky and slightly plastic; many very fine roots; common very fine tubular pores; 15 percent gravel,

5 percent cobbles, and 10 percent stones; neutral (pH 6.6); clear smooth boundary.

A2—3 to 6 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; many very fine roots; common very fine tubular pores; 25 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

Bt1—6 to 10 inches; brown (10YR 4/3) very gravelly silty clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine irregular pores; many faint clay films on faces of peds and in pores; 40 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.

Bt2—10 to 13 inches; dark yellowish brown (10YR 4/4) very gravelly silty clay, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine irregular pores; many faint clay films on faces of peds and in pores; 45 percent gravel and 10 percent cobbles; slightly acid (pH 6.4); abrupt wavy boundary.

R—13 to 17 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—7 to 13 inches

Depth to bedrock—12 to 20 inches

Characteristics of particle-size control section—27 to 35 percent clay (weighted average) and 35 to 80 percent rounded quartzitic rock fragments

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—stony silt loam in the upper part and gravelly loam or very gravelly loam in the lower part

Reaction—slightly acid or neutral

Bt horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly silty clay loam, extremely gravelly silty clay loam, or very gravelly clay loam in the upper part and very gravelly clay, extremely gravelly silty clay loam, or very gravelly silty clay in the lower part

Reaction—slightly acid or moderately acid

Renslow Series

Depth class: Deep and very deep

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Loess over basalt

Slope range: 0 to 30 percent

Elevation: 900 to 2,800 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Typical pedon of Renslow silt loam on a 2-percent slope at an elevation of 2,620 feet; about 50 feet south and 1,000 feet west of the northeast corner of sec. 2, T. 6 N.,

R. 21 E.; latitude 46 degrees 2 minutes 28 seconds north and longitude 120 degrees 8 minutes 28 seconds west.

Ap—0 to 5 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many fine irregular pores; neutral (pH 7.0); abrupt smooth boundary.

A—5 to 13 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; common fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.

Bt—13 to 20 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many fine tubular pores; few distinct clay films; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—20 to 32 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine roots; common fine tubular pores; 5 percent gravel; slightly effervescent, calcium carbonate segregated in common fine irregularly shaped filaments; strongly alkaline (pH 8.6); clear wavy boundary.

Bk2—32 to 45 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; common fine tubular pores; 10 percent gravel; strongly effervescent, calcium carbonate segregated in common fine irregularly shaped filaments; strongly alkaline (pH 8.8); clear wavy boundary.

2R—45 to 49 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—40 to 60 inches or more

Characteristics of particle-size control section—10 to 18 percent clay and 0 to 3 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bt horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Calcium carbonate equivalent—5 to 15 percent

Reaction—moderately alkaline or strongly alkaline

Ritzville Series

Depth class: Deep and very deep

Drainage class: Well drained

Position on landscape: Plateaus and canyon side slopes

Parent material: Loess

Slope range: 2 to 60 percent

Elevation: 700 to 2,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 160 days

Typical pedon of Ritzville silt loam on a 23-percent, east-facing slope at an elevation of 1,540 feet; about 600 feet north and 2,500 feet east of the southwest corner of sec. 9, T. 5 N., R. 22 E.; latitude 45 degrees 55 minutes 37 seconds north and longitude 120 degrees 4 minutes 0 seconds west.

A1—0 to 2 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine irregular pores; neutral (pH 7.0); clear smooth boundary.

A2—2 to 15 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; many very fine and fine roots; common fine tubular pores; slightly alkaline (pH 7.4); gradual smooth boundary.

AB—15 to 24 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and common fine roots; few fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.

Bw—24 to 39 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine and fine roots; few fine tubular pores; slightly alkaline (pH 7.6); clear wavy boundary.

Bk1—39 to 51 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine roots; few fine tubular pores; few filaments of soft calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

Bk2—51 to 60 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine roots; few fine tubular pores; slightly effervescent, calcium carbonate segregated in few fine irregularly shaped filaments; strongly alkaline (pH 8.6).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—40 to 60 inches or more

A horizon

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

AB horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Reaction—neutral or slightly alkaline

Bk horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—silt loam or fine sandy loam

Calcium carbonate equivalent—5 to 15 percent

Reaction—moderately alkaline or strongly alkaline

Rock Creek Series

Depth class: Very shallow and shallow

Drainage class: Well drained

Position on landscape: Plateaus

Parent material: Loess, and residuum derived from basalt

Slope range: 0 to 45 percent

Elevation: 2,700 to 3,900 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 120 to 170 days

Typical pedon of Rock Creek stony silt loam at an elevation of 2,750 feet; about 400 feet west and 75 feet north of the southeast corner of sec. 1, T. 15 N., R. 17 E.; latitude 45 degrees 47 minutes 8 seconds north and longitude 120 degrees 45 minutes 3 seconds west.

A—0 to 2 inches; grayish brown (10YR 5/2) stony silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, friable, slightly sticky and slightly plastic; many very fine and few fine roots; 10 percent gravel, 10 percent cobbles, and 10 percent stones; neutral (pH 6.6); clear smooth boundary.

Bt1—2 to 4 inches; brown (10YR 5/3) very cobbly clay, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; few faint tubular pores; few patchy clay films on faces of peds; 20 percent gravel and 20 percent cobbles; neutral (pH 6.6); abrupt smooth boundary.

Bt2—4 to 10 inches; brown (7.5YR 5/4) very cobbly clay, dark brown (7.5YR 3/4) moist; moderate medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; prominent continuous clay films on faces of peds; few dark organic stains on faces of peds; 30 percent gravel and 20 percent cobbles; neutral (pH 6.6); clear smooth boundary.

R—10 to 14 inches; fractured basalt.

Range in Characteristics

Depth to bedrock—8 to 15 inches

Characteristics of particle-size control section—35 to 45 percent clay and 35 to 90 percent rock fragments

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly acid

Bt horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—extremely cobbly clay loam, very cobbly clay, or very gravelly clay

Reaction—neutral or slightly acid

Rockly Series

Depth class: Very shallow

Drainage class: Well drained

Position on landscape: Plateaus, hillslopes, and canyon side slopes

Parent material: Colluvium derived from basalt mixed with loess and a minor amount of volcanic ash

Slope range: 0 to 80 percent

Elevation: 300 to 3,500 feet

Mean annual precipitation: 15 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 150 days

Typical pedon of Rockly very gravelly loam on a 10-percent, southwest-facing slope at an elevation of 2,600 feet; about 2,200 feet south and 1,700 feet west of the northeast corner of sec. 18, T. 5 N., R. 18 E.; latitude 45 degrees 55 minutes 8 seconds north and longitude 120 degrees 36 minutes 3 seconds west.

A—0 to 4 inches; reddish brown (5YR 5/4) very gravelly loam, dark reddish brown (5YR 3/3) moist; weak fine granular structure; soft, friable, slightly sticky and nonplastic; many very fine and fine roots; many fine irregular pores; 30 percent gravel and 10 percent cobbles; neutral; clear smooth boundary.

Bw—4 to 10 inches; reddish brown (5YR 5/4) extremely gravelly loam, dark reddish brown (5YR 3/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; common very fine and fine roots; many fine irregular pores; 60 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.

2R—10 to 14 inches; fractured basalt.

Range in Characteristics

Thickness of mollic epipedon—5 to 12 inches

Depth to bedrock—5 to 10 inches

Characteristics of particle-size control section—20 to 30 percent clay and 40 to 70 percent rock fragments

Reaction—neutral or slightly acid throughout

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly loam or extremely stony loam

Bw horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 to 4 dry or moist

Texture—extremely gravelly loam, very cobbly clay loam, or extremely cobbly clay loam

Sagehill Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces and terrace escarpments

Parent material: Lacustrine deposits with a mantle of loess

Slope range: 0 to 30 percent

Elevation: 300 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Sagehill fine sandy loam on a 4-percent slope at an elevation of 660 feet; about 1,450 feet south and 500 feet west of the northeast corner of sec. 11, T. 5 N., R. 23 E.; latitude 45 degrees 56 minutes 6 seconds north and longitude 119 degrees 53 minutes 17 seconds west.

- A—0 to 4 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; many fine irregular and common fine tubular pores; slightly alkaline (pH 7.8); clear wavy boundary.
- Bw1—4 to 14 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common fine and medium tubular pores; slightly alkaline (pH 7.8); clear wavy boundary.
- Bw2—14 to 24 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common fine tubular pores; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
- 2Bk1—24 to 38 inches; light gray (10YR 7/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and medium roots; common fine tubular pores; violently effervescent, disseminated calcium carbonate; moderately alkaline (pH 8.2); clear wavy boundary.
- 2Bk2—38 to 51 inches; light brownish gray (2.5Y 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; violently effervescent, calcium carbonate segregated in many fine irregularly shaped filaments; strongly alkaline (pH 8.6); clear wavy boundary.
- 2Bk3—51 to 60 inches; light brownish gray (2.5Y 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; slightly effervescent, disseminated calcium carbonate; strongly alkaline (pH 8.8).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—2 to 8 percent clay and 0 to 3 percent rock fragments

A horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—neutral to moderately alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very fine sandy loam, fine sandy loam, or silt loam

Reaction—neutral to moderately alkaline

2Bk horizon

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 3 dry or moist

Texture—stratified fine sandy loam to silt loam

Calcium carbonate equivalent—5 to 15 percent

Reaction—moderately alkaline or strongly alkaline

Sapkin Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Colluvium and residuum derived from basalt mixed with a minor amount of loess and volcanic ash

Slope range: 5 to 40 percent

Elevation: 2,600 to 3,700 feet

Mean annual precipitation: 18 to 35 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 90 to 120 days

Typical pedon of Sapkin very cobbly loam on a 20-percent, southwest-facing slope at an elevation of 3,700 feet; about 1,600 feet north and 2,300 feet west of the southeast corner of sec. 20, T. 6 N., R. 14 E.; latitude 45 degrees 59 minutes 26 seconds north and longitude 121 degrees 4 minutes 50 seconds west.

A—0 to 7 inches; brown (7.5YR 4/3) very cobbly loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; many fine irregular pores; 10 percent gravel and 30 percent cobbles; slightly acid (pH 6.2); clear smooth boundary.

AB—7 to 16 inches; brown (7.5YR 4/4) very cobbly loam, dark reddish brown (5YR 3/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; many very fine and fine and common medium and coarse roots; many fine irregular and tubular pores; 15 percent gravel and 40 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.

Bt1—16 to 28 inches; brown (7.5YR 4/4) very cobbly loam, dark reddish brown (5YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; many very fine and fine and common medium and coarse roots; many fine tubular pores; few faint clay films in pores; 15 percent gravel, 30 percent cobbles, and 10 percent stones; slightly acid (pH 6.4); clear wavy boundary.

Bt2—28 to 36 inches; brown (7.5YR 4/4) very cobbly loam, dark reddish brown (5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many fine and medium and common coarse roots; common fine and medium tubular pores; few faint clay films in pores; 10 percent gravel, 25 percent cobbles, 5 percent stones, and 30 percent saprolite pararock fragments; neutral (pH 6.8); abrupt wavy boundary.

R—36 to 40 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 18 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—18 to 30 percent clay, 40 to 80 percent rock fragments, and 0 to 30 percent pararock fragments
Reaction—neutral or slightly alkaline throughout

A horizon

Hue—5YR or 7.5YR
Value—3 or 4 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist

AB horizon

Hue—5YR or 7.5YR
Value—3 or 4 dry, 2 or 3 moist
Chroma—3 or 4 dry or moist
Texture—cobbly loam or very cobbly loam

Bt horizon

Hue—5YR or 7.5YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—4 or 6 dry or moist
Texture—very cobbly loam, very gravelly clay loam, or extremely cobbly clay loam

Satus Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Mountains

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash in the upper part

Slope range: 5 to 60 percent

Elevation: 2,000 to 5,000 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 80 to 110 days

Typical pedon of Satus stony ashy loam on a 43-percent, east-facing back slope at an elevation of 3,280 feet; about 200 feet west of the northeast corner of sec. 15, T. 5 N., R. 16 E.; latitude 45 degrees 55 minutes 36 seconds north and longitude 120 degrees 46 minutes 54 seconds west.

Oi—1 inch to 0; slightly decomposed needles and twigs.

A1—0 to 4 inches; reddish brown (5YR 5/3) stony ashy loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine roots; many very fine irregular pores; 15 percent gravel and 12 percent stones; slightly acid (pH 6.2); clear smooth boundary.

A2—4 to 9 inches; reddish brown (5YR 5/3) gravelly ashy loam, dark reddish brown (5YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and few fine roots; many very fine irregular pores; 20 percent gravel; slightly acid (pH 6.0); gradual wavy boundary.

2AB—9 to 19 inches; reddish brown (5YR 5/3) gravelly loam, dark reddish brown (5YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine irregular pores; 20 percent gravel; slightly acid (pH 6.2); clear wavy boundary.

2Bt1—19 to 33 inches; reddish brown (5YR 5/3) very gravelly loam, dark reddish

brown (5YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular and few very fine tubular pores; few distinct clay films in pores; 45 percent gravel and 5 percent cobbles; moderately acid (pH 6.0); clear wavy boundary.

2Bt2—33 to 42 inches; reddish brown (5YR 5/3) very gravelly loam, dark reddish brown (2.5YR 3/4) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine irregular and few very fine tubular pores; few distinct clay films in pores; 45 percent gravel; moderately acid (pH 6.0); clear smooth boundary.

2Bt3—42 to 60 inches; light reddish brown (5YR 6/3) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine irregular pores; common distinct clay films on faces of peds and in pores; 55 percent gravel; moderately acid (pH 5.8).

Range in Characteristics

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—more than 60 inches

Content of rock fragments in particle-size control section—10 to 18 percent clay;
20 to 50 percent rock fragments (weighted average)

Reaction—slightly acid or moderately acid throughout

A horizon

Hue—2.5YR to 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

2Bt horizon

Hue—2.5YR to 7.5YR

Value—5 or 6 dry

Chroma—3 or 4 dry or moist

Texture—very gravelly loam or very gravelly silt loam

Sauter Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Canyonsides

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 30 to 75 percent

Elevation: 200 to 2,200 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 120 to 140 days

Typical pedon of Sauter gravelly loam on a 50-percent, northeast-facing side slope at an elevation of 900 feet; about 800 feet north and 100 feet west of the southeast corner of sec. 19, T. 4 N., R. 14 E.; latitude 45 degrees 48 minutes 46 seconds north and longitude 121 degrees 5 minutes 33 seconds west.

A—0 to 6 inches; brown (7.5YR 4/2) gravelly loam, dark brown (7.5YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine and common medium roots; many fine irregular pores; 20 percent gravel; moderately acid (pH 6.0); clear wavy boundary.

AB—6 to 19 inches; brown (7.5YR 5/2) very gravelly loam, dark brown (7.5YR 3/3)

moist; weak fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine and fine and few medium roots; common fine tubular pores; 40 percent gravel; slightly acid (pH 6.2); gradual wavy boundary.

Bt1—19 to 37 inches; light brown (7.5YR 6/4) very gravelly clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; common very fine, fine, and coarse roots; common fine tubular pores; common distinct clay films on faces of peds; 35 percent gravel and 10 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.

Bt2—37 to 60 inches; light brown (7.5YR 6/4) extremely gravelly clay loam, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; many distinct clay films on faces of peds; 45 percent gravel and 20 percent cobbles; slightly acid (pH 6.4).

Range in Characteristics

Thickness of mollic epipedon—15 to 20 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—20 to 35 percent clay and 35 to 65 percent rock fragments

Reaction—slightly acid or moderately acid throughout

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

AB horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—gravelly loam or very gravelly loam

Bt horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—very cobbly loam, very gravelly loam, very gravelly clay loam, or extremely gravelly clay loam

Scooteney Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces

Parent material: Alluvium

Slope range: 0 to 5 percent

Elevation: 1,150 to 2,600 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 135 to 170 days

Typical pedon of Scooteney silt loam about 1 mile northeast of Mabton; about 600 feet north and 50 feet west of the southeast corner of sec. 31, T. 9 N., R. 23 E.; latitude 46 degrees 15 minutes 23 seconds north and longitude 120 degrees 0 minutes 0 seconds west.

- Ap—0 to 6 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, friable, nonsticky and slightly plastic; many fine roots; many fine pores; neutral; abrupt smooth boundary.
- Bw—6 to 22 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, friable; nonsticky and slightly plastic; many fine roots; many fine pores; neutral; gradual wavy boundary.
- Bk1—22 to 33 inches; light brownish gray (10YR 6/2) gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many fine pores; 20 percent gravel; violently effervescent, disseminated calcium carbonate; moderately alkaline; gradual wavy boundary.
- Bk2—33 to 60 inches; light brownish gray (10YR 6/2) very gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, friable, nonsticky and nonplastic; few fine roots; few pores; 50 percent gravel; slightly effervescent, disseminated calcium carbonate; moderately alkaline.

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—5 to 10 percent clay; 20 to 35 percent rock fragments (weighted average)

A horizon

Value—3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—silt loam or cobbly silt loam

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—silt loam, loam, or very fine sandy loam

Reaction—neutral or slightly alkaline

Bk horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—gravelly fine sandy loam, gravelly silt loam, or cobbly loam in the upper part and very gravelly fine sandy loam or very cobbly sandy loam in the lower part

Calcium carbonate equivalent—5 to 10 percent

Selah Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Bedrock-controlled terraces on plateaus

Parent material: Loess and old alluvium over basalt

Slope range: 2 to 15 percent

Elevation: 500 to 2,100 feet

Mean annual precipitation: 9 to 15 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Selah silt loam on a 4-percent slope at an elevation of 2,000 feet; about 1,560 feet south and 750 feet east of the northwest corner of sec. 36, T. 4 N., R. 20 E.; latitude 45 degrees 47 minutes 23 seconds north and longitude 120 degrees 15 minutes 33 seconds west.

- A1—0 to 4 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; neutral (pH 7.2); abrupt smooth boundary.
- A2—4 to 11 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; common very fine and fine and few medium roots; common very fine and fine irregular and few medium and coarse tubular pores; neutral (pH 7.2); clear wavy boundary.
- Bt1—11 to 20 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine irregular and few medium tubular pores; common distinct clay films on faces of peds and in pores; neutral (pH 7.2); clear wavy boundary.
- Bt2—20 to 27 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine irregular and common medium tubular pores; common distinct clay films on faces of peds and in pores; 5 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
- Btk—27 to 39 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine and fine irregular pores; many prominent clay films on faces of peds and in pores; 30 percent gravel; strongly effervescent; calcium carbonate on faces of peds and on underside of rock fragments; moderately alkaline (pH 8.2); abrupt wavy boundary.
- 2Bkqm—39 to 50 inches; indurated duripan cemented with calcium carbonate and silica; abrupt wavy boundary.
- 3R—50 to 54 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—7 to 15 inches

Depth to duripan—20 to 40 inches

Depth to bedrock—24 to 57 inches

Characteristics of particle-size control section—25 to 35 percent clay and 0 to 30 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bt horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam, silty clay loam, or clay loam

Reaction—neutral or slightly alkaline

Btk horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—clay loam or gravelly clay loam

Calcium carbonate equivalent—5 to 15 percent

Reaction—slightly alkaline or moderately alkaline

Setnum Series

Depth class: Moderately deep

Drainage class: Somewhat poorly drained

Position on landscape: Depressions of plateaus

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 0 to 3 percent

Elevation: 1,400 to 3,600 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 110 to 150 days

Typical pedon of Setnum silt loam on a 2-percent slope at an elevation of 1,675 feet; about 300 feet north and 1,250 feet east of the southwest corner of sec. 36, T. 4 N., R. 15 E.; latitude 45 degrees 46 minutes 57 seconds north and longitude 120 degrees 52 minutes 46 seconds west.

Ap—0 to 10 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many fine irregular pores; slightly acid (pH 6.4); clear wavy boundary.

E—10 to 17 inches; light gray (10YR 7/1) silt loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine tubular pores; neutral (pH 6.6); abrupt smooth boundary.

Btss—17 to 26 inches; dark brown (10YR 3/3) clay, very dark grayish brown (10YR 3/2) moist; moderate fine prismatic structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; common fine tubular pores; slickensides and many prominent clay films on faces of peds; neutral (pH 6.8); clear wavy boundary.

Bt—26 to 31 inches; dark yellowish brown (10YR 3/4) clay loam, dark brown (10YR 3/3) moist; strong medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common fine tubular pores; common faint clay films on faces of peds; neutral (pH 7.2); gradual wavy boundary.

BC—31 to 39 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak fine angular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine roots; common fine tubular pores; neutral (pH 7.2); abrupt wavy boundary.

R—39 to 43 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—35 to 45 percent clay and 0 to 5 percent rock fragments

Water table—may be present in winter to spring

Ap horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2 dry or moist

Reaction—slightly acid or moderately acid

E horizon

Value—6 or 7 dry, 4 or 5 moist

Chroma—1 or 2 dry or moist

Texture—silt loam or loam

Reaction—neutral or slightly acid

Bt horizon

Hue—2.5YR or 10YR

Value—3 to 6 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—clay or clay loam

Reaction—neutral or slightly acid

BC horizon

Hue—2.5YR or 10YR

Value—5 to 7 dry, 3 to 6 moist

Chroma—3 to 5 dry or moist

Texture—clay loam or loam

Reaction—neutral or slightly acid

Shano Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Plateaus

Parent material: Loess

Slope range: 2 to 30 percent

Elevation: 700 to 1,300 feet

Mean annual precipitation: 6 to 10 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Shano silt loam on a 4-percent, northeast-facing slope at an elevation of 1,035 feet; about 400 feet north and 500 feet west of the southeast corner of

sec. 21, T. 6 N., R. 23 E.; latitude 45 degrees 59 minutes 0 seconds north and longitude 119 degrees 55 minutes 48 seconds west.

A1—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak thin platy structure and weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; slightly alkaline (pH. 7.6); clear wavy boundary.

Bw1—7 to 26 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to medium subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many fine tubular pores; slightly alkaline (pH 7.8); clear wavy boundary.

Bw2—26 to 34 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many fine tubular pores; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bk1—34 to 45 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common fine tubular pores; 2 percent gravel; violently effervescent, calcium carbonate segregated in few fine irregularly shaped filaments; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bk2—45 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine tubular pores; 5 percent gravel; slightly effervescent, disseminated calcium carbonate; strongly alkaline (pH 9.0).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—5 to 10 percent clay and 0 to 5 percent rock fragments

A horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—neutral to moderately alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—slightly alkaline or moderately alkaline

Bk horizon

Value—5 to 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Calcium carbonate equivalent—2 to 15 percent

Reaction—slightly alkaline to strongly alkaline

Sienna Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus and canyon shoulder slopes

Parent material: Old alluvium and residuum derived from basalt

Slope range: 2 to 30 percent

Elevation: 2,600 to 3,800 feet

Mean annual precipitation: 12 to 18 inches

Mean annual air temperature: 47 to 49 degrees F

Frost-free period: 120 to 170 days

Typical pedon of Sienna stony silt loam on a 2-percent slope at an elevation of 3,015 feet; about 1,540 feet south and 1,890 feet east of the northwest corner of sec. 1, T. 6 N., R. 20 E.; latitude 46 degrees 2 minutes 15 seconds north and longitude 120 degrees 15 minutes 11 seconds west.

A1—0 to 4 inches; brown (7.5YR 5/2) stony silt loam, dark brown (7.5YR 3/2) moist; weak coarse platy structure parting to moderate medium and coarse subangular blocky; slightly hard, friable, nonsticky and slightly plastic; many fine and very fine roots; common very fine tubular and common fine vesicular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; neutral (pH 6.6); clear smooth boundary.

A2—4 to 8 inches; brown (7.5YR 5/2) gravelly silt loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many fine vesicular and common very fine tubular pores; 25 percent gravel and 5 percent cobbles; neutral (pH 6.8); clear smooth boundary.

Bt1—8 to 13 inches; brown to dark brown (7.5YR 4/3) very gravelly silt loam, dark brown (7.5YR 3/2) moist; moderate medium and coarse subangular blocky

structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; many very fine vesicular pores; common faint clay films on faces of peds and in pores; 30 percent gravel and 10 percent cobbles; neutral (pH 6.8); abrupt smooth boundary.

Bt2—13 to 24 inches; brown (7.5YR 5/3) very cobbly clay loam, brown to dark brown (7.5YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; many very fine vesicular pores; many distinct clay films on faces of peds and in pores; 25 percent gravel, 15 percent cobbles, and 2 percent stones; neutral (pH 6.8); abrupt wavy boundary.

R—24 to 28 inches; basalt.

Range in Characteristics

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—25 to 35 percent clay and 35 to 60 percent rounded quartzitic rock fragments

Reaction—neutral or slightly acid throughout

A horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bt1 horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very gravelly silt loam, very gravelly silty clay loam, or very gravelly clay loam

Bt2 horizon

Hue—5YR to 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 to 4 dry or moist

Texture—very cobbly clay loam or very gravelly clay loam

Stacker Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus and hillslopes

Parent material: Loess over basalt

Slope range: 2 to 65 percent

Elevation: 250 to 3,200 feet

Mean annual precipitation: 12 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 120 to 170 days

Typical pedon of Stacker silt loam on a 4-percent slope at an elevation of 1,275 feet; about 1,375 feet south and 2,500 feet west of the northeast corner of sec. 7, T. 2 N., R. 14 E.; latitude 45 degrees 40 minutes 39 seconds north and longitude 121 degrees 6 minutes 6 seconds west.

A1—0 to 6 inches; brown (10YR 4/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine granular structure; slightly hard, friable, slightly

sticky and slightly plastic; many very fine and few fine roots; many fine irregular pores; neutral (pH 6.8); clear smooth boundary.

A2—6 to 18 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many fine irregular pores; slightly acid (pH 6.4); abrupt smooth boundary.

Bt—18 to 28 inches; brown (10YR 5/3) silty clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; common fine irregular and tubular pores; common distinct clay films on faces of peds and lining pores; slightly acid (pH 6.2); abrupt smooth boundary.

2R—28 to 32 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—12 to 20 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—20 to 30 percent clay and 0 to 5 percent rock fragments

Reaction—neutral or slightly acid throughout

A horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—3 or 4 dry, 2 or 3 moist

Bt horizon

Hue—10YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—silt loam, silty clay loam, or clay loam

Starbuck Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 0 to 45 percent

Elevation: 250 to 2,600 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 140 to 170 days

Typical pedon of Starbuck cobbly silt loam on a 22-percent, southwest-facing slope at an elevation of 1,480 feet; about 700 feet south and 1,400 feet east of the northwest corner of sec. 5, T. 6 N., R. 23 E.; latitude 46 degrees 2 minutes 23 seconds north and longitude 119 degrees 57 minutes 48 seconds west.

A—0 to 3 inches; brown (10YR 5/3) cobbly silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine irregular pores; 10 percent gravel and 10 percent cobbles; neutral (pH 6.8); abrupt wavy boundary.

Bw1—3 to 10 inches; pale brown (10YR 6/3) gravelly silt loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; many fine irregular pores; 10 percent gravel and 5 percent cobbles; neutral (pH. 7.0); clear wavy boundary.

Bw2—10 to 13 inches; pale brown (10YR 6/3) gravelly silt loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few fine roots; common fine irregular pores; 15 percent gravel and 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.
2R—13 to 17 inches; basalt.

Range in Characteristics

Depth to bedrock—12 to 20 inches
Characteristics of particle-size control section—5 to 15 percent clay and 5 to 35 percent rock fragments
Reaction—neutral or slightly alkaline throughout

A horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist

Bw horizon

Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4 dry or moist
Texture—silt loam, fine sandy loam, or gravelly silt loam

Sugarbowl Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Slope alluvium and colluvium derived from basalt mixed with volcanic ash

Slope range: 5 to 30 percent

Elevation: 2,000 to 3,600 feet

Mean annual precipitation: 45 to 55 inches

Mean annual air temperature: 41 to 45 degrees F

Frost-free period: 75 to 95 days

Typical pedon of Sugarbowl ashy loam on a 15-percent, southeast-facing side slope at an elevation of 3,380 feet; about 730 feet north and 100 feet east of the southwest corner of sec. 7, T. 6 N., R. 10 E.; latitude 46 degrees 1 minute 3 seconds north and longitude 121 degrees 36 minutes 30 seconds west.

Oi—1.5 inches to 1.0 inch; slightly decomposed needles, leaves, and twigs.

Oe—1.0 inch to 0; moderately decomposed needles, leaves, and twigs.

A1—0 to 4 inches; brown (7.5YR 4/2) ashy loam, very dark brown (7.5YR 2/2) moist; weak very fine granular structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine and common fine and medium roots; many very fine irregular pores; 10 percent fine gravel; slightly acid (pH 6.2); clear smooth boundary.

A2—4 to 15 inches; brown (7.5YR 5/3) ashy loam, dark brown (7.5YR 3/3) moist; weak fine granular structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many very fine, fine, and medium roots; many very fine irregular and tubular pores; 10 percent fine gravel; moderately acid (pH 6.0); clear smooth boundary.

Bw1—15 to 25 inches; brown (7.5YR 5/3) ashy loam, dark brown (7.5YR 3/4) moist; weak very fine subangular blocky structure; soft, friable, slightly sticky and nonplastic; weakly smeary; many fine and very fine roots; many very fine irregular and common very fine tubular pores; 10 percent gravel; slightly acid (pH 6.1); gradual smooth boundary.

Bw2—25 to 41 inches; brown (7.5YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak very fine and fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; weakly smeary; common very fine roots; many very fine irregular and common very fine tubular pores; 10 percent gravel; slightly acid (pH 6.4); gradual smooth boundary.

BC—41 to 60 inches; brown (7.5YR 5/4) gravelly ashy loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine roots; many very fine irregular and few very fine tubular pores; 25 percent gravel; neutral (pH 6.6).

Range in Characteristics

Thickness of umbric epipedon—10 to 19 inches

Thickness of volcanic ash influence—40 to 60 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—7 to 15 percent clay and 0 to 15 percent rock fragments

Reaction—neutral to moderately acid throughout

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bw horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 6 dry

Texture—loam or gravelly loam

Suta Series

Depth class: Deep

Drainage class: Well drained

Position on landscape: Canyonsides

Parent material: Colluvium derived from basalt mixed with a minor amount of loess and volcanic ash

Slope range: 40 to 60 percent

Elevation: 1,700 to 3,000 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 100 to 140 days

Typical pedon of Suta bouldery loam on a 60-percent, southeast-facing side slope at an elevation of 2,200 feet; about 3,100 feet north and 1,500 feet east of the southwest corner of sec. 28, T. 5 N., R. 16 E.; latitude 45 degrees 53 minutes 24 seconds north and longitude 120 degrees 48 minutes 48 seconds west.

Oi—2 inches to 0; slightly decomposed needles, twigs, and leaves.

A1—0 to 7 inches; brown (7.5YR 5/2) bouldery loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure; soft, friable, slightly sticky and nonplastic; many very fine and few fine roots; many very fine irregular pores; 5 percent stones and boulders and 20 percent gravel; neutral (pH 7.0); clear wavy boundary.

A2—7 to 12 inches; brown (7.5YR 5/2) very gravelly loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure, soft, friable, slightly sticky and nonplastic; many very fine and few fine and medium roots; many very fine

irregular and few very fine tubular pores; 30 percent gravel and 5 percent cobbles; neutral (pH 6.6); clear wavy boundary.

Bw1—12 to 24 inches; brown (7.5YR 5/4) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; common very fine irregular and few very fine tubular pores; 40 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.

Bw2—24 to 42 inches; brown (7.5YR 5/4) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine irregular and few fine tubular pores; 45 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); abrupt irregular boundary.

2R—42 to 46 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—40 to 60 inches

Characteristics of particle-size control section—18 to 23 percent clay and 35 to 50 percent rock fragments

Reaction—neutral or slightly acid throughout

A horizon

Hue—5YR or 7.5YR

Chroma—2 or 3 dry or moist

Bw horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry

Chroma—3 or 4 dry or moist

Swalecreek Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces, drainageway escarpments, and terrace escarpments

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 0 to 65 percent

Elevation: 300 to 2,800 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 110 to 170 days

Typical pedon of Swalecreek silt loam on a 1-percent, northwest-facing slope at an elevation of 1,640 feet; about 1,000 feet south and 1,750 feet east of the northwest corner of sec. 24, T. 3 N., R. 15 E.; latitude 45 degrees 44 minutes 9 seconds north and longitude 120 degrees 52 minutes 34 seconds west.

Ap—0 to 6 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular pores; moderately acid (pH 6.0); abrupt smooth boundary.

A—6 to 18 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common fine tubular pores; slightly acid (pH 6.2); clear wavy boundary.

- BA_t**—18 to 22 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; few faint clay films on faces of peds; slightly acid (pH 6.4); clear wavy boundary.
- B_t1**—22 to 31 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; common fine tubular pores; common distinct clay films on faces of peds and in pores; slightly acid (pH 6.4); gradual wavy boundary.
- B_t2**—31 to 47 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; common distinct clay films on faces of peds; neutral (pH 6.6); clear wavy boundary.
- B_tc**—47 to 60 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; few faint clay films on faces of peds; many hard manganese concretions 1 to 2 millimeters in size; neutral (pH 6.8).

Range in Characteristics

Thickness of mollic epipedon—10 to 18 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 35 percent clay and 0 to 10 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral to moderately acid

BA horizon

Chroma—2 or 3 moist

Reaction—neutral or slightly acid

B_t and B_tc horizons

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3, 4, or 6 dry, 2 to 4 moist

Texture—silty clay loam, silt loam, or clay loam

Reaction—neutral or slightly acid

Tekison Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Mountain slopes, hillslopes, plateaus, and canyon side slopes

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 0 to 65 percent

Elevation: 800 to 3,400 feet

Mean annual precipitation: 15 to 25 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Tekison stony loam on a 30-percent, southwest-facing slope at an

elevation of 2,500 feet; about 1,000 feet south and 1,350 feet west of the northeast corner of sec. 21, T. 5 N., R. 19 E.; latitude 45 degrees 54 minutes 31 seconds north and longitude 120 degrees 25 minutes 57 seconds west.

- A—0 to 8 inches; dark brown (7.5YR 3/2) stony loam, very dark brown (7.5YR 2/2) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine irregular pores; 0.1 percent stones on surface; 10 percent gravel, 3 percent cobbles, and 5 percent stones; neutral (pH 6.8); gradual wavy boundary.
- AB—8 to 18 inches; brown (7.5YR 4/2) gravelly clay loam, dark brown (7.5YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many fine irregular pores; 10 percent gravel and 5 percent cobbles; neutral (pH 6.6); abrupt wavy boundary.
- Bt1—18 to 32 inches; brown (7.5YR 4/4) very cobbly clay, dark brown (7.5YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and medium and few coarse roots; common fine and medium tubular pores; many distinct clay films in pores and on faces of peds; 10 percent gravel and 35 percent cobbles; slightly acid (pH 6.2); clear wavy boundary.
- Bt2—32 to 44 inches; brown (7.5YR 4/4) extremely cobbly clay, dark brown (7.5YR 3/4) moist; moderate medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine and common medium roots; common fine and medium tubular pores; common distinct clay films in pores and on faces of peds; 15 percent gravel and 55 percent cobbles; slightly acid (pH 6.4); gradual wavy boundary.
- BC—44 to 60 inches; brown (7.5YR 5/4) very cobbly clay loam, brown (7.5YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; 10 percent gravel, 35 percent cobbles, and 30 percent basalt pararock fragments; slightly acid (pH 6.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 18 inches

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—10 to 20 inches

Characteristics of particle-size control section—40 to 55 percent clay and 40 to 70 percent rock fragments

A horizon

Hue—10YR or 7.5YR

Value—3 or 4 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—stony loam or silt loam

Reaction—neutral to moderately acid

AB horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry

Chroma—2 to 4 dry, 2 or 3 moist

Texture—gravelly clay loam or gravelly loam

Reaction—slightly acid or moderately acid

Bt horizon

Hue—7.5YR or 5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very cobbly clay, extremely cobbly clay, or very gravelly clay

Reaction—slightly acid or moderately acid

BC horizon

Hue—7.5YR or 5YR

Texture—very cobbly clay loam, very gravelly clay loam, or very cobbly clay

Reaction—slightly acid or moderately acid

Thiessen Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 15 to 45 percent

Elevation: 3,200 to 4,000 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Thiessen very stony silt loam on a 32-percent, southeast-facing slope at an elevation of 3,600 feet; about 250 feet south and 1,500 feet west of the northeast corner of sec. 7, T. 6 N., R. 20 E.; latitude 46 degrees 1 minute 37 seconds north and longitude 120 degrees 21 minutes 4 seconds west.

A—0 to 6 inches; dark brown (10YR 3/3) very stony silt loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine granular structure; soft, friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine and medium irregular pores; 20 percent gravel, 15 percent cobbles, and 10 percent stones; neutral (pH 6.8); clear smooth boundary.

Bt1—6 to 16 inches; brown (7.5YR 4/3) very cobbly clay loam, dark brown (7.5YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium roots; many fine and medium irregular and few fine tubular pores; many faint stress cutans and clay films on faces of peds; 15 percent gravel and 25 percent cobbles; neutral (pH 6.0); clear wavy boundary.

Bt2—16 to 23 inches; brown (7.5YR 4/3) very cobbly clay, dark brown (7.5YR 3/3) moist; strong medium subangular blocky structure; hard, very firm, moderately sticky and moderately plastic; common very fine, fine, and medium roots; common fine and medium irregular and common fine tubular pores; many faint stress cutans and clay films on faces of peds; 20 percent gravel and 30 percent cobbles; neutral (pH 6.8); clear wavy boundary.

BC—23 to 30 inches; dark yellowish brown (10YR 4/4) very cobbly clay, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; extremely hard, very firm, moderately sticky and moderately plastic; few fine and medium roots; common fine and medium irregular and common fine tubular pores; few clay films on faces of peds; common pressure faces and slickensides; 30 percent gravel and 20 percent cobbles; slightly acid (pH 6.4); abrupt wavy boundary.

2R—30 to 34 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—20 to 30 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—35 to 45 percent clay and 40 to 65 percent angular basalt fragments

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Bt horizon

Hue—7.5YR or 10YR

Value—3 to 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

Texture—very gravelly clay loam, very cobbly clay loam, very gravelly clay, or very cobbly clay

Reaction—neutral or slightly alkaline

BCt horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very cobbly clay, very gravelly clay loam, extremely cobbly clay loam, or very cobbly clay loam

Reaction—neutral or slightly acid

Threecreeks Series

Depth class: Very deep

Drainage class: Moderately well drained

Position on landscape: Flood plains

Parent material: Alluvium derived from basalt mixed with loess

Slope range: 0 to 3 percent

Elevation: 1,400 to 1,800 feet

Mean annual precipitation: 15 to 18 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 120 to 150 days

Typical pedon of Threecreeks silt loam on a 1-percent slope at an elevation of 1,460 feet; about 1,000 feet north and 600 feet west of the southeast corner of sec. 22, T. 4 N., R. 15 E.; latitude 45 degrees 48 minutes 48 seconds north and longitude 120 degrees 54 minutes 20 seconds west.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many fine irregular and common fine tubular pores; slightly acid (pH. 6.2); abrupt smooth boundary.

A2—4 to 10 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and fine and common medium roots; many fine irregular and common fine and medium tubular pores; slightly acid (pH 6.2); clear smooth boundary.

AB—10 to 24 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine and fine and few medium roots; common fine irregular and many fine and medium tubular pores; moderately acid (pH 6.0); clear wavy boundary.

- Bw—24 to 41 inches; dark brown (10YR 4/3) sandy loam, dark grayish brown (10YR 4/2) moist; common fine distinct redoximorphic concentrations that are dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine and common fine and medium roots; common fine irregular and common fine and medium tubular pores; moderately acid (pH 6.0); abrupt wavy boundary.
- 2Cc—41 to 48 inches; dark brown (10YR 4/3) gravelly sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine and medium irregular pores; 30 percent gravel; common medium yellowish red (5YR 4/6) iron concretions; moderately acid (pH 5.8); clear wavy boundary.
- 2C—48 to 60 inches; yellowish brown (10YR 5/6) sand, dark brown (7.5YR 4/4) moist; few medium distinct redoximorphic concentrations that are yellowish red (5YR 5/6) moist; single grain; loose, nonsticky and nonplastic; few fine roots; many fine and medium irregular pores; 10 percent gravel; moderately acid (pH 5.8).

Range in Characteristics

Thickness of mollic epipedon—20 to 30 inches

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—40 to 60 inches

Characteristics of particle-size control section—15 to 18 percent clay and 0 to 10 percent rock fragments

Reaction—slightly acid or moderately acid throughout

Water table—present in winter to early in spring

Flooding—occurs in winter to early in spring

A horizon

Value—2 or 3 moist, 3 or 4 dry

Chroma—2 or 3 dry or moist

Bw horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—silt loam, loam, or sandy loam

2C horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 to 5 dry

Chroma—2 to 6 dry or moist

Texture—gravelly sand, very gravelly sand, or loamy sand

Tigit Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus

Parent material: Residuum and colluvium derived from basalt mixed with a minor amount of volcanic ash in the upper part

Slope range: 2 to 30 percent

Elevation: 1,600 to 2,500 feet

Mean annual precipitation: 25 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 130 days

Typical pedon of Tigitt ash loam on an 8-percent, southwest-facing slope at an elevation of 2,200 feet; about 2,800 feet north and 200 feet west of the southeast corner of sec. 1, T. 4 N., R. 12 E.; latitude 45 degrees 51 minutes 43 seconds north and longitude 121 degrees 14 minutes 20 seconds west.

Oi—1.5 inches to 0; slightly decomposed needles, leaves, and twigs.

A—0 to 3 inches; brown (7.5YR 5/2) ashy loam, dark reddish brown (5YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine roots; many very fine irregular pores; 10 percent gravel and 5 percent paragravel; slightly acid (pH 6.2); clear smooth boundary.

AB—3 to 6 inches; light reddish brown (5YR 6/3) ashy loam, dark reddish brown (5YR 3/3) moist; weak fine subangular blocky structure parting to coarse granular; slightly hard, friable, slightly sticky and nonplastic; weakly smeary; many very fine, common fine, and few medium roots; many fine irregular pores; 5 percent paragravel; slightly acid (pH 6.2); clear wavy boundary.

BA—6 to 15 inches; light brown (7.5YR 6/4) loam, dark reddish brown (5YR 3/4) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few coarse roots; many fine irregular pores; 5 percent paragravel; slightly acid (pH 6.2); clear smooth boundary.

Bt1—15 to 30 inches; light brown (7.5YR 6/4) loam, dark reddish brown (5YR 3/4) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular pores; few faint clay films on faces of peds and in pores; 5 percent paragravel; moderately acid (pH 6.0); clear wavy boundary.

Bt2—30 to 39 inches; light brown (7.5YR 6/4) very paragravelly loam, dark reddish brown (5YR 3/4) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine and few medium roots; many fine irregular and tubular pores; few faint clay films on faces of peds and in pores; 35 percent paragravel, 5 percent cobbles, and 5 percent stones; moderately acid (pH 6.0); clear smooth boundary.

Cr—39 to 49 inches; weathered basalt; few fine roots in fractures; 25 percent cobbles and stones.

Range in Characteristics

Thickness of volcanic ash influence—2 to 6 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—18 to 25 percent clay, 5 to 45 percent pararock fragments, 0 to 20 percent gravel, and 0 to 15 percent cobbles and stones

Reaction—slightly acid or moderately acid throughout

A horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry

Chroma—2 to 4 dry, 2 or 3 moist

AB and BA horizons

Hue—5YR or 7.5YR

Value—5 or 6 dry

Chroma—3 or 4 dry or moist
Texture—loam or gravelly loam

Bt horizon

Hue—5YR or 7.5YR
Value—3 or 4 moist
Texture—loam, cobbly loam, gravelly loam, or paragravelly loam

Timberhead Series

Depth class: Very deep
Drainage class: Well drained
Position on landscape: Mountain slopes
Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash
Slope range: 5 to 65 percent
Elevation: 1,400 to 4,000 feet
Mean annual precipitation: 50 to 65 inches
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 90 to 120 days

Typical pedon of Timberhead gravelly ashy loam on a 30-percent, southeast-facing backslope at an elevation of 2,800 feet; about 1,200 feet south and 1,600 feet west of the northeast corner of sec. 30, T. 4 N., R. 10 E.; latitude 45 degrees 48 minutes 33 seconds north and longitude 121 degrees 35 minutes 37 seconds west.

Oi—1 inch to 0; slightly decomposed needles, twigs, and cones.

A—0 to 8 inches; dark brown (7.5YR 4/4) gravelly ashy loam, dark brown (7.5YR 3/3) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and few fine roots; many very fine irregular pores; 25 percent gravel; moderately acid (pH 5.9); clear smooth boundary.

AB—8 to 28 inches; dark brown (7.5YR 4/4) gravelly ashy loam, dark brown (7.5YR 3/3) moist; weak very fine subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and nonplastic; weakly smeary; common very fine, fine, and medium roots; common fine irregular and tubular pores; 30 percent gravel; moderately acid (pH 6.0); gradual wavy boundary.

Bw—28 to 42 inches; yellowish brown (10YR 5/4) gravelly ashy loam, dark yellowish brown (10YR 4/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; few fine and medium roots; common very fine irregular and few very fine tubular pores; 20 percent gravel; moderately acid (pH 6.0); clear smooth boundary.

C—42 to 60 inches; strong brown (7.5YR 5/6) extremely paragravelly ashy loam, dark brown (7.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; common fine roots; many fine irregular pores; 70 percent paragravel and 5 percent cobbles; moderately acid (pH 5.9).

Range in Characteristics

Thickness of volcanic ash influence—40 to 60 inches
Depth to bedrock—more than 60 inches
Characteristics of particle-size control section—10 to 18 percent clay and 20 to 35 percent basalt fragments

A horizon

Hue—5YR or 7.5YR
Value—3 or 4 dry
Chroma—3 or 4 dry, 2 or 3 moist

Bw horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—4 to 6 dry

Reaction—moderately acid or strongly acid

C horizon

Chroma—6 to 8 dry

Texture—very paragravelly ashy loam or extremely paragravelly ashy loam

Reaction—moderately acid or strongly acid

Trelk Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces

Parent material: Alluvium derived from basalt mixed with volcanic ash in the upper part

Slope range: 2 to 10 percent

Elevation: 1,300 to 1,600 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 47 degrees F

Frost-free period: 90 to 120 days

Typical pedon of Trelk ashy loam on a 2-percent slope at an elevation of 1,560 feet; about 50 feet north and 2,550 feet east of the southwest corner of sec. 10, T. 6 N., R. 13 E.; latitude 46 degrees 0 minutes 57 seconds north and longitude 121 degrees 10 minutes 3 seconds west.

Oi—1 inch to 0.5 inch; slightly decomposed needles and twigs.

Oa—0.5 inch to 0; highly decomposed organic material.

A1—0 to 5 inches; brown (7.5YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine and common medium roots; many fine irregular pores; neutral (pH 6.8); gradual smooth boundary.

A2—5 to 10 inches; brown (7.5YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; weakly smeary; common very fine and fine and few medium roots; common fine irregular and tubular pores; 5 percent gravel; neutral (pH 6.8); clear smooth boundary.

2BA—10 to 17 inches; light brown (7.5YR 6/4) loam, dark brown (7.5YR 4/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine irregular and few fine tubular pores; 5 percent gravel; neutral (pH 6.8); gradual wavy boundary.

2Bt—17 to 33 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, firm, moderately sticky and slightly plastic; few fine and medium and common very fine roots; common fine irregular and tubular pores; common faint clay films on faces of peds and in pores; 10 percent gravel and 5 percent paragravel; neutral (pH 6.8); gradual smooth boundary.

2C—33 to 60 inches; brown (7.5YR 5/4) gravelly loam, dark brown (7.5YR 4/4) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common fine irregular and few fine tubular pores; 15 percent gravel and 10 percent paragravel; slightly acid (pH 6.4).

Range in Characteristics

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—18 to 33 percent clay, 0 to 20 percent rock fragments, and 0 to 10 percent pararock fragments

Reaction—neutral to moderately acid throughout

A horizon

Hue—5YR or 7.5YR

Chroma—3 or 4 dry or moist

2Bt horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—loam, clay loam, or gravelly loam

A 2BCt horizon is present in some pedons.

2C horizon

Chroma—4 to 6 dry

Texture—loam or gravelly loam

Tronsen Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes and canyon side slopes

Parent material: Colluvium and residuum derived from basalt with an influence of loess and volcanic ash in the upper part

Slope range: 5 to 65 percent

Elevation: 800 to 2,600 feet

Mean annual precipitation: 12 to 16 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 120 to 165 days

Typical pedon of Tronsen stony ashy silt loam on a 29-percent, northwest-facing slope at an elevation of 2,220 feet; about 1,600 feet south and 125 feet east of the northwest corner of sec. 22, T. 4 N., R. 19 E.; latitude 45 degrees 49 minutes 10 seconds north and longitude 120 degrees 25 minutes 32 seconds west.

A—0 to 8 inches; brown (7.5YR 4/3) stony ashy silt loam, dark brown (7.5YR 3/2) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common fine and medium tubular pores; 15 percent gravel, 5 percent cobbles, 5 percent stones, and 1 percent surface stones; neutral (pH 7.2); clear smooth boundary.

BAt—8 to 14 inches; brown (7.5YR 4/3) very gravelly clay loam, dark brown (7.5YR 3/3) moist; weak fine and medium subangular blocky structure; hard, firm, sticky and plastic; common fine and medium roots; many fine and medium tubular pores; common faint clay films on faces of peds; 30 percent gravel and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt1—14 to 33 inches; brown (7.5YR 5/3) very cobbly clay loam, dark brown (7.5YR 3/3) moist; weak fine subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; few fine and medium roots; few fine tubular pores; common faint clay films on faces of peds; 30 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); clear wavy boundary.

Bt2—33 to 60 inches; light brown (7.5YR 6/3) very cobbly clay loam, brown to dark

brown (7.5YR 4/3) moist; moderate medium subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; few fine roots; few fine and medium tubular pores; few faint clay films on faces of peds; 30 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Thickness of volcanic ash influence—7 to 11 inches

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—7 to 11 inches

Characteristics of particle-size control section—35 to 50 percent clay and 35 to 75 percent rock fragments

A horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry or moist

BA_t horizon

Hue—10YR or 7.5YR

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—very gravelly clay loam, very gravelly clay, or very cobbly clay loam

B_t horizon

Hue—10YR or 7.5YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 or 4 dry or moist

Texture—very gravelly clay, very gravelly clay loam, very cobbly clay loam, extremely gravelly clay, or very cobbly clay

Reaction—neutral or slightly alkaline

Trouter Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Valleys

Parent material: Volcanic ash

Slope range: 2 to 15 percent

Elevation: 800 to 2,150 feet

Mean annual precipitation: 48 to 52 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 85 to 110 days

Typical pedon of Trouter stony ashy loam on a 2-percent slope at an elevation of 1,910 feet; about 2,300 feet south and 200 feet west of the northeast corner of sec. 26, T. 6 N., R. 10 E.; latitude 45 degrees 58 minutes 48 seconds north and longitude 121 degrees 30 minutes 27 seconds west.

O_i—1 inch to 0; slightly decomposed needles, leaves, and twigs.

A—0 to 4 inches; dark grayish brown (10YR 4/2) stony ashy loam, dark brown (7.5YR 3/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; many very fine irregular and common very fine tubular pores; 5 percent gravel and 10 percent stones; slightly acid (pH 6.2); clear smooth boundary.

AB—4 to 11 inches; dark brown (10YR 4/3) ashy loam, dark brown (7.5YR 3/3) moist;

weak very fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and few medium roots; many very fine irregular and common very fine tubular pores; 5 percent gravel; slightly acid (pH 6.4); gradual smooth boundary.

Bw1—11 to 22 inches; yellowish brown (10YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine, fine, and medium roots; many very fine irregular and common very fine tubular pores; 5 percent gravel; slightly acid (pH 6.4); gradual smooth boundary.

Bw2—22 to 29 inches; yellowish brown (10YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and few fine and medium roots; many very fine irregular and few very fine tubular pores; 5 percent gravel; neutral (pH 6.6); abrupt wavy boundary.

2R—29 to 33 inches; basalt.

Range in Characteristics

Thickness of umbric epipedon—10 to 16 inches

Thickness of volcanic ash influence—20 to 40 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—7 to 18 percent clay; 0 to 10 percent rock fragments (weighted average)

Reaction—neutral or slightly acid throughout

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Bw horizon

Hue—7.5YR or 10YR

Value—3 or 4 moist

Troutlake Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Toeslopes of hills

Parent material: Slope alluvium and colluvium derived from basalt mixed with volcanic ash

Slope range: 1 to 5 percent

Elevation: 1,500 to 2,950 feet

Mean annual precipitation: 50 to 55 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 80 to 90 days

Typical pedon of Troutlake ashy loam on a 2-percent slope at an elevation of 1,880 feet; about 2,300 feet north and 2,300 feet west of the southeast corner of sec. 36, T. 6 N., R. 10 E.; latitude 45 degrees 57 minutes 48 seconds north and longitude 121 degrees 29 minutes 41 seconds west.

Oi—1 inch to 0; needles and slightly decomposed leaves and twigs.

A1—0 to 3 inches; brown (10YR 5/3) ashy loam, dark brown (7.5YR 3/2) moist; weak fine and very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine and few medium roots;

many very fine irregular pores; 10 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

A2—3 to 10 inches; brown (10YR 5/3) ashy loam, dark brown (7.5YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine roots, few medium roots; many very fine irregular and common very fine tubular pores; 5 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

Bw1—10 to 21 inches; yellowish brown (10YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak fine and very fine subangular blocky structure; hard, friable, slightly sticky and moderately plastic; weakly smeary; common very fine and fine and few medium and coarse roots; many very fine irregular and common very fine tubular pores; 5 percent gravel; slightly acid (pH 6.2); gradual smooth boundary.

Bw2—21 to 40 inches; dark yellowish brown (10YR 4/4) ashy clay loam, dark brown (7.5YR 3/4) moist; moderate fine and very fine angular blocky and subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; common very fine irregular and tubular pores; 2 percent gravel; slightly acid (pH 6.2); gradual smooth boundary.

Bw3—40 to 60 inches; yellowish brown (10YR 5/4) ashy clay loam, dark brown (7.5YR 4/4) moist; moderate fine and very fine angular blocky and subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and very fine roots; common very fine and few fine tubular pores; 5 percent gravel; slightly acid (pH 6.1).

Range in Characteristics

Thickness of mollic epipedon—8 to 16 inches

Thickness of volcanic ash influence—40 to 60 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—15 to 30 percent clay and 2 to 10 percent rock fragments

Reaction—slightly acid or moderately acid throughout

A horizon

Hue—7.5YR or 10YR

Bw horizon

Hue—7.5YR or 10YR

Value—4 to 6 dry, 3 or 4 moist

Texture—ashy loam or ashy clay loam

Umapine Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Position on landscape: Flood plains

Parent material: Alluvium derived from loess

Slope range: 0 to 2 percent

Elevation: 300 to 2,000 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 145 to 155 days

Typical pedon of Umapine silt loam on a 2-percent slope at an elevation of 500 feet; about 1,500 feet north and 2,500 feet east of the southwest corner of sec. 33, T. 5 N., R. 23 E.; latitude 45 degrees 52 minutes 10 seconds north and longitude 119 degrees 56 minutes 24 seconds west.

- Akn1—0 to 6 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; many very fine irregular pores; strongly effervescent, disseminated calcium carbonate; strongly alkaline (pH 8.6); abrupt smooth boundary.
- Akn2—6 to 20 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; few faint redoximorphic concentrations; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common fine irregular and tubular pores; strongly effervescent, disseminated calcium carbonate; strongly alkaline (pH 8.6); clear wavy boundary.
- Bkn1—20 to 35 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; few faint redoximorphic concentrations; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common fine irregular and tubular pores; violently effervescent, disseminated calcium carbonate; strongly alkaline (pH 8.6); clear wavy boundary.
- Bkn2—35 to 47 inches; light brownish gray (2.5Y 6/2) silt loam, very dark grayish brown (2.5Y 3/2) moist; few faint redoximorphic concentrations; massive; soft, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; many fine and few medium tubular pores; violently effervescent, disseminated calcium carbonate; strongly alkaline (pH 8.6); clear wavy boundary.
- C—47 to 60 inches; light brownish gray (2.5Y 6/2) silt loam, very dark grayish brown (2.5Y 3/2) moist; few faint redoximorphic concentrations; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; many fine and common medium tubular pores; violently effervescent; moderately alkaline (pH 8.0).

Range in Characteristics

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—10 to 20 percent

Water table—may be present in winter to early in summer

Flooding—may occur late in winter to early in spring

Akn horizon

Hue—10YR or 2.5Y

Value—5 or 6 dry, 3 to 5 moist

Chroma—1 to 3 dry or moist

Calcium carbonate equivalent—10 to 20 percent

Reaction—strongly alkaline or very strongly alkaline

Bkn horizon

Hue—10YR or 2.5Y

Value—5 to 7 dry, 3 to 5 moist

Chroma—1 or 2 dry or moist

Calcium carbonate equivalent—10 to 20 percent

Reaction—strongly alkaline or very strongly alkaline

C horizon

Hue—10YR

Value—5 or 6 dry

Chroma—1 to 3 dry or moist

Calcium carbonate equivalent—10 to 20 percent

Reaction—slightly alkaline to very strongly alkaline

Underwood Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Plateaus and backslopes and footslopes of mountains

Parent material: Colluvium and residuum derived from basalt with an influence of volcanic ash in the upper part

Slope range: 2 to 50 percent

Elevation: 400 to 2,800 feet

Mean annual precipitation: 35 to 65 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 130 days

Typical pedon of Underwood ashy loam on a 3-percent slope at an elevation of 2,240 feet; about 2,200 feet north and 1,200 feet west of the southeast corner of sec. 13, T. 5 N., R. 12 E.; latitude 45 degrees 55 minutes 10 seconds north and longitude 121 degrees 14 minutes 30 seconds west.

Oi—1 inch to 0; slightly decomposed needles, leaves, and twigs.

Ac—0 to 3 inches; reddish brown (5YR 4/4) ashy loam, dark reddish brown (5YR 3/4) moist; weak very fine and fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine roots; many very fine irregular pores; 20 percent fine shotlike aggregates 2 to 4 millimeters in size; neutral (pH 6.6); clear smooth boundary.

ABc—3 to 7 inches; brown (7.5YR 5/4) ashy loam, dark reddish brown (5YR 3/4) moist; weak very fine subangular blocky structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; weakly smeary; many very fine and fine and common medium roots; many very fine irregular and tubular pores; 20 percent fine shotlike aggregates 2 to 4 millimeters in size; slightly acid (pH 6.4); gradual smooth boundary.

2Bt1—7 to 19 inches; brown (7.5YR 5/4) gravelly loam, dark brown (7.5YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine and common medium roots; many very fine irregular and tubular pores; few faint clay films in pores; 15 percent gravel and 20 percent basalt paragravel; slightly acid (pH 6.2); gradual wavy boundary.

2Bt2—19 to 37 inches; strong brown (7.5YR 5/6) gravelly loam, dark brown (7.5YR 4/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine irregular and common very fine tubular pores; few faint clay films in pores; 15 percent gravel and 20 percent basalt paragravel; moderately acid (pH 5.6); gradual irregular boundary.

2C—37 to 60 inches; strong brown (7.5YR 5/6) very paragravelly loam, dark brown (7.5YR 4/4) and reddish brown (5YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine irregular and few very fine tubular pores; 50 percent basalt paragravel; moderately acid (pH 5.6).

Range in Characteristics

Thickness of volcanic ash influence—7 to 14 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—25 to 35 percent clay, 15 to 30 percent basalt pararock fragments, 5 to 20 percent gravel, and 0 to 5 percent cobbles

Ac horizon

Hue—5YR or 7.5YR

Value—3 to 5 dry, 3 or 4 moist

Chroma—3 to 6 dry, 2 to 4 moist

Reaction—neutral or slightly acid

2Bt horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry, 3 or 4 moist

Chroma—4 to 6 dry

Texture—loam, gravelly loam, clay loam, or paragravelly loam

Reaction—slightly acid or moderately acid

2C horizon, where present

Hue—5YR or 7.5YR

Value—5 or 6 dry, 4 or 5 moist

Chroma—4 to 6 dry

Texture—loam, clay loam, paragravelly loam, or very paragravelly loam

Reaction—moderately acid or strongly acid

Van Nostern Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Plateaus and canyon shoulder slopes

Parent material: Loess over basalt

Slope range: 2 to 30 percent

Elevation: 1,800 to 4,000 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 125 to 160 days

Typical pedon of Van Nostern silt loam on a 3-percent slope at an elevation of 3,120 feet; about 20 feet south and 2,000 feet east of the northwest corner of sec. 36, T. 6 N., R. 19 E.; latitude 45 degrees 58 minutes 6 seconds north and longitude 120 degrees 22 minutes 24 seconds west.

A1—0 to 6 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine irregular pores; neutral (pH 6.8); clear smooth boundary.

A2—6 to 11 inches; brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular and few very fine irregular pores; neutral (pH 6.8); clear smooth boundary.

BAt—11 to 19 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate coarse prismatic structure parting to strong fine and medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and fine tubular pores; common faint clay films on faces of peds; neutral (pH 6.6); clear smooth boundary.

Bt1—19 to 28 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to strong fine and medium subangular blocky; hard, firm, moderately sticky and moderately plastic; common very fine roots; many very fine and fine tubular pores; common faint clay films on faces of peds; neutral (pH 6.6); clear smooth boundary.

Bt2—28 to 34 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist;

moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; few faint clay films on faces of peds; 5 percent gravel; neutral (pH 6.6); abrupt wavy boundary.

2R—34 to 38 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—20 to 30 inches

Depth to bedrock—20 to 40 inches

Characteristics of particle-size control section—18 to 27 percent clay and 0 to 5 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly acid

BAt horizon

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bt horizon

Value—4 to 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Reaction—neutral or slightly alkaline

Volash Series

Depth class: Deep

Drainage class: Well drained

Position on landscape: Plains

Parent material: Volcanic ash over basalt

Slope range: 2 to 15 percent

Elevation: 1,800 to 2,800 feet

Mean annual precipitation: 52 to 57 inches

Mean annual air temperature: 43 to 45 degrees F

Frost-free period: 75 to 95 days

Typical pedon of Volash ashy loam on a 5-percent, north-facing slope at an elevation of 2,370 feet; about 100 feet south and 1,200 feet east of the northwest corner of sec. 32, T. 6 N., R. 10 E.; latitude 45 degrees 58 minutes 10 seconds north and longitude 121 degrees 35 minutes 13 seconds west.

Oi—1.5 inches to 1.0 inch; slightly decomposed needles, leaves, and twigs.

Oe—1.0 inch to 0; moderately decomposed needles, leaves, and twigs.

A1—0 to 4 inches; dark brown (10YR 4/3) ashy loam, dark brown (7.5YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine roots; many fine irregular and many very fine tubular pores; 5 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

A2—4 to 12 inches; dark yellowish brown (10YR 4/4) ashy loam, dark brown (7.5YR 3/3) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine and common medium roots; many very fine irregular and tubular pores; 5 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

BA—12 to 25 inches; dark yellowish brown (10YR 4/4) ashy loam, dark brown (7.5YR 3/4) moist; weak fine and very fine subangular blocky structure; soft, friable,

slightly sticky and nonplastic; weakly smeary; common very fine, fine, and medium roots; many very fine irregular and tubular pores; 5 percent gravel; slightly acid (pH 6.4); gradual smooth boundary.

Bw1—25 to 36 inches; yellowish brown (10YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak fine and very fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; weakly smeary; common very fine and fine roots; many very fine irregular and tubular pores; 3 percent gravel; neutral (pH 6.6); gradual smooth boundary.

Bw2—36 to 48 inches; yellowish brown (10YR 5/4) ashy loam, dark brown (7.5YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine and fine roots; many very fine irregular and common very fine tubular pores; 10 percent gravel; neutral (pH 6.6); abrupt wavy boundary.

2R—48 to 52 inches; basalt.

Range in Characteristics

Thickness of umbric epipedon—10 to 15 inches

Thickness of volcanic ash influence—40 to 60 inches

Depth to bedrock—40 to 60 inches

Characteristics of particle-size control section—10 to 18 percent clay and 0 to 10 percent rock fragments

A horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry

Chroma—2 to 4 dry, 2 or 3 moist

Bw horizon

Hue—7.5YR or 10YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 6 dry

Reaction—neutral or slightly acid

Wahoo Series

Depth class: Shallow

Drainage class: Well drained

Position on landscape: Canyon shoulder slopes and dissected plateaus

Parent material: Colluvium and residuum derived from basalt mixed with loess

Slope range: 2 to 30 percent

Elevation: 1,100 to 2,900 feet

Mean annual precipitation: 18 to 25 inches

Mean annual air temperature: 46 to 48 degrees F

Frost-free period: 110 to 140 days

Typical pedon of Wahoo stony clay loam on an 11-percent, south-facing slope at an elevation of 2,150 feet; about 800 feet north and 2,000 feet east of the southwest corner of sec. 5, T. 5 N., R. 14 E.; latitude 45 degrees 56 minutes 40 seconds north and longitude 121 degrees 5 minutes 0 seconds west.

A—0 to 5 inches; brown (7.5YR 5/4) stony clay loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular pores; 15 percent gravel and 15 percent stones; slightly acid (pH 6.4); clear smooth boundary.

Bt—5 to 12 inches; brown (7.5YR 4/4) extremely stony clay loam, dark brown (7.5YR 3/2) moist; moderate fine and medium subangular blocky structure; hard, friable,

moderately sticky and moderately plastic; many very fine and fine roots; many very fine irregular and few very fine tubular pores; 30 percent gravel, 20 percent cobbles, and 20 percent stones; common distinct clay films on faces of peds and in pores; slightly acid pH 6.2); abrupt wavy boundary.

R—12 to 16 inches; basalt.

Range in Characteristics

Thickness of mollic epipedon—7 to 20 inches

Depth to bedrock—10 to 20 inches

Characteristics of particle-size control section—27 to 35 percent clay; 50 to 85 percent rock fragments (weighted average)

Reaction—slightly acid or moderately acid throughout

A horizon

Hue—5YR or 7.5YR

Value—4 or 5 dry

Chroma—3 or 4 dry, 2 or 3 moist

Bt horizon

Hue—7.5YR or 10YR

Value—4 or 5 dry

Chroma—3 or 4 dry, 2 or 3 moist

Texture—extremely stony silty clay loam, extremely stony clay loam, or very stony clay loam

Walla Walla Series

Depth class: Deep and very deep

Drainage class: Well drained

Position on landscape: Hillslopes

Parent material: Loess

Slope range: 0 to 65 percent

Elevation: 150 to 2,600 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 120 to 170 days

Typical pedon of Walla Walla silt loam on a 4-percent slope at an elevation of 1,280 feet; about 750 feet north and 1,750 feet east of the southwest corner of sec. 10, T. 3 N., R. 18 E.; latitude 45 degrees 45 minutes 11 seconds north and longitude 120 degrees 32 minutes 39 seconds west.

Ap—0 to 6 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 2/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many fine and medium irregular pores; neutral (pH 6.8); abrupt smooth boundary.

A—6 to 11 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common fine tubular pores; neutral (pH 6.8); clear wavy boundary.

Bw1—11 to 31 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; neutral (pH 7.0); gradual wavy boundary.

Bw2—31 to 50 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, friable, slightly sticky and slightly

plastic; few very fine and fine roots; few fine tubular pores; slightly alkaline (pH 7.6); clear wavy boundary.

Bk—50 to 60 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; strongly calcareous with disseminated calcium carbonate; strongly alkaline (pH 8.6).

Range in Characteristics

Thickness of mollic epipedon—10 to 20 inches

Depth to bedrock—more than 60 inches

Depth to duripan, where present—40 to 60 inches or more

Content of clay in particle-size control section—10 to 18 percent

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—silt loam or very fine sandy loam

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Reaction—neutral or slightly alkaline

Bk horizon

Value—5 to 7 dry, 4 or 5 moist

Chroma—3 or 4 dry or moist

Texture—silt loam or silt

Calcium carbonate equivalent—5 to 10 percent

Reaction—slightly alkaline to strongly alkaline

Warden Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces and terrace escarpments

Parent material: Loess over lacustrine deposits

Slope range: 0 to 30 percent

Elevation: 300 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Warden silt loam on a 4-percent slope at an elevation of 940 feet; about 50 feet north and 1,400 feet west of the southeast corner of sec. 5, T. 5 N., R. 23 E.; latitude 45 degrees 56 minutes 20 seconds north and longitude 119 degrees 57 minutes 18 seconds west.

A—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bw—4 to 21 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine tubular pores; slightly alkaline (pH 7.6); abrupt wavy boundary.

- 2Bk—21 to 29 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few thin laminated lenses of very fine sandy loam; common very fine and fine roots; common fine tubular pores; 2 percent fine gravel; few aggregates of calcium carbonate; strongly effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.
- 2C1—29 to 39 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; common very fine and few fine roots; common fine tubular pores; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.
- 2C2—39 to 51 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, friable, nonsticky and nonplastic; common very fine and few fine roots; common fine tubular pores; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.
- 2C3—51 to 60 inches; pale brown (10YR 6/3) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine tubular pores; violently effervescent; strongly alkaline (pH 8.8).

Range in Characteristics

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—8 to 15 percent clay and 0 to 2 percent fine gravel

A horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Reaction—neutral or slightly alkaline

2Bk horizon

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 or 3 dry or moist

Texture—stratified silt loam and very fine sandy loam

Calcium carbonate equivalent—10 to 30 percent

Reaction—moderately alkaline or strongly alkaline

2C horizon

Hue—2.5Y or 10YR

Value—6 or 7 dry, 4 or 5 moist

Chroma—2 to 4 dry or moist

Texture—stratified silt loam and very fine sandy loam

Calcium carbonate equivalent—10 to 30 percent

Reaction—moderately alkaline or strongly alkaline

Wato Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces

Parent material: Loess over glaciofluvial deposits

Slope range: 2 to 15 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 140 to 170 days

Typical pedon of Wato silt loam on a 3-percent slope at an elevation of 680 feet; about 1,500 feet north and 2,500 feet east of the southwest corner of sec. 34, T. 3 N., R. 16 E.; latitude 45 degrees 41 minutes 51 seconds north and longitude 120 degrees 47 minutes 28 seconds west.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many fine irregular pores; neutral (pH 6.6); abrupt smooth boundary.

A—8 to 19 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common fine tubular pores; neutral (pH 6.6); abrupt smooth boundary.

Bw—19 to 36 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine roots; common fine tubular pores; 10 percent gravel; neutral (pH 6.8); clear wavy boundary.

C1—36 to 49 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine tubular pores; 25 percent gravel; neutral (pH 6.8); clear smooth boundary.

2C2—49 to 60 inches; very pale brown (10YR 7/3) very gravelly loamy sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; many irregular pores; 35 percent gravel and 10 percent cobbles; slightly effervescent; slightly alkaline (pH 7.6).

Range in Characteristics

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—40 to 60 inches

Characteristics of particle-size control section—10 to 15 percent clay and 0 to 10 percent rock fragments

Reaction—neutral or slightly alkaline throughout

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bw horizon

Hue—10YR or 2.5Y

Value—4 to 6 dry, 2 to 5 moist

Chroma—2 to 4 dry or moist

Texture—loam or very fine sandy loam

C1 horizon

Hue—10YR or 2.5Y

Value—4 to 8 dry, 4 to 6 moist

Texture—gravelly sandy loam, very fine sandy loam, or sandy loam

Chroma—3 or 4 dry or moist

2C2 horizon

Texture—very gravelly loamy sand or very gravelly sand

Calcium carbonate equivalent—1 to 5 percent

Weirman Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Position on landscape: Flood plains

Parent material: Alluvium

Slope range: 0 to 5 percent

Elevation: 250 to 2,600 feet

Mean annual precipitation: 6 to 14 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Weirman fine sandy loam on a 1-percent slope at an elevation of 680 feet; about 500 feet south and 1,000 feet west of the northeast corner of sec. 24, T. 5 N., R. 22 E.; latitude 45 degrees 54 minutes 33 seconds north and longitude 119 degrees 59 minutes 44 seconds west.

A—0 to 4 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, friable, nonsticky and nonplastic; many very fine roots; 10 percent gravel; neutral (pH 7.0); abrupt smooth boundary.

AC—4 to 10 inches; brown (10YR 5/3) very gravelly loamy sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; 30 percent gravel and 10 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

2C1—10 to 24 inches; brown (10YR 5/3) very gravelly sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; 35 percent gravel and 10 percent cobbles; neutral (pH 7.0); abrupt smooth boundary.

2C2—24 to 60 inches; grayish brown (10YR 5/2) extremely gravelly sand, very dark grayish brown (10YR 3/2) moist; single grain; loose; common very fine and fine and few medium roots; 60 percent gravel, 10 percent cobbles, and 5 percent stones; neutral (pH 6.8).

Range in Characteristics

Thickness of mollic epipedon—10 to 17 inches

Depth to bedrock—more than 60 inches

Depth to strongly contrasting textural stratification—4 to 10 inches

Characteristics of particle-size control section—0 to 5 percent clay and 35 to 60 percent rock fragments

Reaction—neutral or slightly alkaline throughout

Water table (irrigation induced)—may be present below a depth of 40 inches in winter to early in spring

Flooding—may occur late in winter to early in spring

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

AC horizon

Value—4 or 5 dry, 3 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly loamy sand or gravelly loamy sand

2C horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—2 or 3 dry or moist

Texture—very gravelly loamy sand, very gravelly sand, or extremely gravelly sand

Willis Series

Depth class: Moderately deep

Drainage class: Well drained

Position on landscape: Terraces and terrace escarpments

Parent material: Loess

Slope range: 2 to 30 percent

Elevation: 1,000 to 1,700 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Willis silt loam on a 4-percent slope at an elevation of 1,580 feet; about 2,000 feet north and 2,400 feet east of the southwest corner of sec. 6, T. 3 N., R. 21 E.; latitude 45 degrees 46 minutes 12 seconds north and longitude 120 degrees 14 minutes 56 seconds west.

Ap1—0 to 3 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular pores; slightly alkaline (pH 7.4); clear smooth boundary.

Ap2—3 to 7 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; soft, friable, nonsticky and nonplastic; many very fine roots; many fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bw—7 to 15 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine roots; many very fine and fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.6); clear wavy boundary.

Bk1—15 to 26 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; common very fine roots; common fine tubular pores; 5 percent gravel; calcium carbonate in filaments; slightly effervescent; moderately alkaline (pH 8.2); abrupt irregular boundary.

Bk2—26 to 33 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few fine tubular pores; 10 percent gravel and 2 percent cobbles; calcium carbonate in filaments; slightly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

2Bkqm—33 inches; indurated duripan cemented with calcium carbonate and silica.

Range in Characteristics

Thickness of mollic epipedon—7 to 14 inches

Depth to duripan—20 to 40 inches

Characteristics of particle-size control section—10 to 15 percent clay and 0 to 5 percent rock fragments

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry

Reaction—neutral or slightly alkaline

Bw horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Reaction—neutral to moderately alkaline

Bk horizon

Value—6 or 7 dry

Calcium carbonate equivalent—1 to 10 percent

Reaction—moderately alkaline or strongly alkaline

Wind River Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Terraces

Parent material: Old alluvium or outwash

Slope range: 5 to 10 percent

Elevation: 100 to 300 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 180 days

Typical pedon of Wind River fine sandy loam on a 5-percent, south-facing slope at an elevation of 200 feet; about 1,500 feet south and 300 feet east of the northwest corner of sec. 2, T. 2 N., R. 12 E.; latitude 45 degrees 41 minutes 32 seconds north and longitude 121 degrees 16 minutes 39 seconds west.

A—0 to 6 inches; brown (10YR 4/3) fine sandy loam, dark brown (10YR 3/3) moist; weak very fine and fine granular structure; slightly hard, friable, nonsticky and slightly plastic; many very fine roots; many very fine tubular pores; neutral (pH 6.8); clear wavy boundary.

Bw—6 to 15 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; slightly acid (pH 6.4); clear wavy boundary.

C1—15 to 33 inches; yellowish brown (10YR 5/4) fine sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and coarse roots; many very fine tubular pores; slightly acid (pH 6.2); clear wavy boundary.

C2—33 to 42 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and coarse roots; many very fine tubular pores; slightly acid (pH 6.2); clear wavy boundary.

C3—42 to 60 inches; yellowish brown (10YR 5/4) loamy fine sand, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and coarse roots; many very fine tubular pores; slightly acid (pH 6.2).

Range in Characteristics

Thickness of mollic epipedon—12 to 20 inches

Depth to bedrock—more than 60 inches

Content of clay in particle-size control section—5 to 10 percent

Reaction—neutral or slightly acid throughout

A horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Bw horizon

Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3 dry or moist

Texture—fine sandy loam or sandy loam

C horizon

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—fine sandy loam, sandy loam, sand, or loamy fine sand

Wipple Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Hillslopes and canyon side slopes

Parent material: Colluvium derived from basalt mixed with loess

Slope range: 2 to 65 percent

Elevation: 400 to 2,700 feet

Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F

Frost-free period: 130 to 170 days

Typical pedon of Wipple very stony clay loam on a 55-percent, southeast-facing slope at an elevation of 1,250 feet, about 2,250 feet north and 150 feet west of the southeast corner of sec. 17, T. 5 N., R. 22 E.; latitude 45 degrees 54 minutes 58 seconds north and longitude 120 degrees 4 minutes 30 seconds west.

- A—0 to 6 inches; brown (10YR 5/3) very stony clay loam, dark brown (10YR 3/3) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine irregular pores; 15 percent gravel, 10 percent cobbles, and 30 percent stones; neutral (pH 7.0); clear smooth boundary.
- BA—6 to 15 inches; brown (10YR 4/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine tubular pores; 15 percent gravel and 25 percent cobbles; neutral (pH 7.2); clear smooth boundary.
- Bt—15 to 23 inches; dark yellowish brown (10YR 4/4) very cobbly clay, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common fine tubular pores; few faint clay films in pores; 15 percent gravel and 30 percent cobbles; slightly alkaline; (pH 7.4); clear wavy boundary.
- Btk1—23 to 40 inches; dark yellowish brown (10YR 4/4) very cobbly clay, brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common fine tubular pores; many prominent clay films on faces of peds and in pores; 15 percent gravel and 40 percent cobbles; coatings of calcium carbonate on rock fragments; slightly alkaline (pH 7.4); gradual wavy boundary.
- Btk2—40 to 60 inches; brown (10YR 5/3) extremely cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine tubular pores; common distinct clay films on faces of peds and in pores; 30 percent gravel and

40 percent cobbles; coatings of calcium carbonate on rock fragments; slightly alkaline (pH 7.4).

Range in Characteristics

Thickness of mollic epipedon—10 to 15 inches

Depth to bedrock—more than 60 inches

Depth to abrupt textural change—10 to 20 inches

Characteristics of particle-size control section—50 to 60 percent clay and 40 to 65 percent rock fragments

A horizon

Value—4 or 5 dry

Chroma—2 or 3 dry or moist

Texture—very stony clay loam or cobbly clay loam

Bt horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—extremely cobbly clay, very cobbly clay, or very gravelly clay

Reaction—slightly alkaline or moderately alkaline

Btk horizon

Value—4 or 5 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Texture—very cobbly clay, extremely cobbly clay loam, very cobbly clay loam, or very gravelly clay loam

Calcium carbonate equivalent—0 to 5 percent

Reaction—slightly alkaline or moderately alkaline

Xerands

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Cinder cones

Parent material: Volcanic ash and cinders

Slope range: 25 to 45 percent

Elevation: 700 to 4,250 feet

Mean annual precipitation: 20 to 45 inches

Mean annual air temperature: 43 to 50 degrees F

Frost-free period: 100 to 140 days

Reference pedon of Xerands on a 20-percent, east-facing slope at an elevation of 2,240 feet; about 600 feet north and 2,100 feet west of the southeast corner of sec. 30, T. 5 N., R. 16 E.; latitude 45 degrees 53 minutes 7 seconds north and longitude 120 degrees 53 minutes 33 seconds west.

A—0 to 8 inches; reddish brown (5YR 5/3) gravelly ashy sandy loam, dark reddish brown (5YR 3/3) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine roots; many very fine irregular pores; 20 percent cinders; slightly acid (pH 6.4); clear smooth boundary.

Bw1—8 to 18 inches; reddish brown (2.5YR 5/4) gravelly ashy loam, dark red (2.5YR 3/6) moist; moderate very fine and fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; weakly smeary; common very fine and fine and few medium roots; common very fine irregular pores; 20 percent cinders; slightly acid (pH 6.2); clear smooth boundary.

Bw2—18 to 25 inches; reddish brown (2.5YR 4/4) gravelly ashy sandy clay loam, dark

red (2.5YR 3/6) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine and fine and few medium roots; many fine irregular pores; 25 percent cinders; slightly acid (pH 6.2); clear smooth boundary.

Bw3—25 to 36 inches; red (2.5YR 4/6) gravelly ashy sandy clay loam, dark red (2.5YR 3/6) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; common very fine and fine roots; many fine irregular pores; 30 percent cinders; slightly acid (pH 6.2); gradual wavy boundary.

Bw4—36 to 60 inches; red (2.5YR 4/6) very gravelly ashy sandy clay loam, dark red (2.5YR 3/6) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; weakly smeary; few very fine roots; many fine irregular pores; 55 percent cinders; slightly acid (pH 6.4).

Range in Characteristics

Thickness of volcanic ash influence—more than 60 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—10 to 35 percent clay and 15 to 60 percent rock fragments

Reaction—slightly acid or moderately acid throughout

A horizon

Hue—2.5YR to 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—3 or 4 dry or moist

Bw horizon

Hue—2.5YR to 5YR

Value—4 to 6 dry, 3 to 5 moist

Chroma—3 to 6 dry or moist

Texture—gravelly ashy loam, gravelly ashy sandy loam, gravelly ashy sandy clay loam, very gravelly ashy sandy loam, or very gravelly ashy sandy clay loam

Yedlick Series

Depth class: Very deep

Drainage class: Well drained

Position on landscape: Mountain slopes

Parent material: Colluvium and residuum derived from basalt mixed with volcanic ash in the upper part

Slope range: 8 to 30 percent

Elevation: 1,100 to 1,900 feet

Mean annual precipitation: 30 to 35 inches

Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 90 to 110 days

Typical pedon of Yedlick stony ashy sandy loam on a 25-percent, southwest-facing backslope at an elevation of 1,540 feet; about 1,000 feet south and 1,500 feet east of the northwest corner of sec. 3, T. 6 N., R. 13 E.; latitude 46 degrees 2 minutes 30 seconds north and longitude 121 degrees 10 minutes 5 seconds west.

Oi—1.0 to 0.5 inch; slightly decomposed needles, leaves, and twigs.

Oa—0.5 inch to 0; highly decomposed organic material.

A—0 to 5 inches; reddish gray (5YR 5/2) stony ashy sandy loam, dark reddish brown (5YR 3/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine roots; many very fine

irregular pores; 15 percent gravel and 10 percent stones; slightly acid (pH 6.4); clear wavy boundary.

AB—5 to 13 inches; light reddish brown (5YR 6/4) gravelly ashy sandy loam, dark reddish brown (5YR 3/4) moist; weak very fine subangular blocky structure parting to weak very fine granular; slightly hard, friable, slightly sticky and nonplastic; weakly smeary; many very fine and fine roots; many very fine irregular and common very fine tubular pores; 10 percent gravel and 5 percent cobbles; slightly acid (pH 6.3); gradual wavy boundary.

2Bw1—13 to 28 inches; light brown (7.5YR 6/4) very gravelly loam, dark reddish brown (5YR 3/4) moist; weak very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine irregular and tubular pores; 30 percent gravel and 10 percent cobbles; slightly acid (pH 6.2); gradual wavy boundary.

2Bw2—28 to 50 inches; light brown (7.5YR 6/4) very gravelly loam, dark brown (7.5YR 3/4) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine irregular and common very fine tubular pores; 40 percent gravel and 10 percent cobbles; slightly acid (pH 6.2); gradual wavy boundary.

2Bw3—50 to 60 inches; light brown (7.5YR 6/4) very gravelly loam, dark brown (7.5YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine irregular and few very fine tubular pores; 30 percent gravel and 5 percent cobbles; slightly acid (pH 6.3).

Range in Characteristics

Thickness of volcanic ash influence—7 to 13 inches

Depth to bedrock—more than 60 inches

Characteristics of particle-size control section—5 to 20 percent clay and 35 to 50 percent rock fragments

A and AB horizons

Hue—5YR or 7.5YR

Chroma—2 to 4 dry or moist

2Bw horizon

Hue—5YR or 7.5YR

Value—5 or 6 dry, 3 or 4 moist

Chroma—4 to 6 dry or moist

Texture—very gravelly sandy loam or very gravelly loam

Formation of the Soils

Soil is a collection of three-dimensional natural bodies of mineral and organic matter on the earth's surface that supports plants. Properties and characteristics of soil at any given place are determined by soil-forming processes that result from the (1) physical and mineralogical composition of the parent material; (2) climate under which the soil has developed; (3) topography; (4) living organisms; and (5) length of time the soil processes have acted on the parent material.

Soil formation results from a combination of many processes acting in different proportions and intensities at different times and places on the soil landscape (Simonson, 1959). Processes of soil formation include addition, removal, translocation, and transformation of soil material. In this survey area, soils have also developed as a result of the accumulation of organic matter and the translocation and accumulation of silicate clay minerals, soluble salts, and carbonates.

The soil-forming factors are discussed separately in this section; however, the processes are interdependent and a combination of all the processes forms a specific kind of soil.

Parent Material

The nature of soil is strongly influenced by the characteristics of parent material, particularly by its mineralogy and mode of deposition. The parent material in most of the survey area is basic igneous rock. During the Miocene and into the Pliocene (1.5 to 12.0 million years ago), many extensive lava flows erupted from large fissures, flooding the area with thick deposits of basalt. Individual lava flows vary from a few dozen feet in thickness to several hundred feet. The Columbia River Basalt is more than 10,000 feet thick in places. The oldest of the flows extends across the entire survey area. The subsequent flows were progressively smaller, so their westerly extent is further to the east. In addition to the decrease in volume, there was also a gradual sinking of the Columbia Basin and an uplifting of the Horse Heaven Plateau. East of the town of Bickleton, basalt flows dip at a uniform grade of about 3 percent toward the Columbia Basin. The flows, in order of age, are the Grand Rhone, Priest Rapids, Rosa, Pomona, Umatilla, and Elephant Mountain. The flows following the Pomona flow commonly are referred to as Yakima Basalt. They are separated from other Columbia River Basalt flows by alluvial material (Ellensburg Formation) that was deposited between the flows.

The youngest of the basalt flows are derived from the uplifting of the Simcoe Mountains and King Mountain. These flows have covered most of the north-central and northwestern parts of the survey area with olivine basalt. Recent volcanism has occurred as cinder cones, primarily in the central and western parts of the survey area. A layer of volcanic ash has been deposited over much of the area from vents in the Cascade Mountains, especially at the higher elevations.

Colluvium and residuum derived from basalt mixed with loess (on hillslopes, summits, and canyon side slopes).—Anticlinal folding (deformation of basalt) in the Yakima Fold province began during the Pliocene, producing large ridges such as the Horse Heaven and Goodnoe Hills. Examples of soils that formed in residuum and colluvium derived from basalt mixed with loess are the Rockly, Horseflat, and

Lickskilllet series. Examples of soils that formed in colluvium derived from basalt mixed with loess are the Badge and Ralls series. Areas of these soils on north-facing hillslopes and canyon side slopes have a greater influence of loess.

Interbedded sediment (on old terraces of uplifted plateaus).—The uplift that produced the Cascade Range began during the Pliocene. Considerable quantities of volcanic sand and gravel were washed from the Cascade Range and deposited along its flanks (ancient alluvial fans). These deposits make up the Ellensburg Formation, which consists of layers of gravel, sand, silt, and clay (siltstone, sandstone, and conglomerate) that are both overlying and between flows of Columbia River Basalt.

Quartzite-rich gravel at the base of the Ellensburg Formation was deposited by the ancestral Columbia River prior to uplifting and anticlinal folding (deformation of basalt) in the Yakima Folds province. Columbia River gravel is distinctive in that it is more than 50 percent quartzite. It is on the Pomona basalt flow and older deposits and is covered by Elephant Mountain and Simcoe Basalt.

These deposits are in various locations from Bickleton to White Salmon, where uplifting has occurred, and in the Goodnoe area, which has not been uplifted. Quartzite gravel is in many younger deposits, indicating that they may have been reworked to some degree.

Reilloc and Sienna soils formed in alluvial, quartzite-rich gravel over basalt. Olex soils formed in loess over extremely gravelly alluvium. Borfin soils formed in material weathered from old alluvial deposits and fine interbedded sediment of the Ellensburg Formation. These soils have a high shrink-swell potential and are characterized by wide cracks in the profile.

Loess and old alluvium (on old terraces of uplifted plateaus).—Anticlinal folding (deformation of basalt) in the Yakima Folds province began during the Pliocene. Basaltic gravelly alluvium (late Pliocene or early Pleistocene), known as fanglomerate, eroded from anticlinal ridges and was deposited along the flanks of ridges on fan piedmonts (ancient alluvial fans).

During the uplift of the Cascade Range, there was a gradual shift from a semihumid climate to a semiarid one. The gradual increase in calcium carbonate and the cementation of the fanglomerate are evidence of the drier climate. Weathering of volcanic ash and other pyroclastic material appears to be the major source of the silica cementation of the duripan in soils that formed on old alluvial fans. Volcanoes of the Cascade Range have provided additions of this material. The duripan in a soil is not always related to the profile currently overlying it; it can be a relict feature associated with a previous soil-forming cycle or an erosional remnant of an ancient soil. Examples of soils that formed in loess and old alluvium are the Benwy, Endicott, and Selah series.

Outwash (glaciofluvial) and slackwater (glaciolacustrine) deposits and loess (on terraces).—Large terraces are in the eastern part of the survey area. They are composed of slackwater deposits from numerous flooding episodes of glacial Lake Missoula. These deposits are composed of numerous graded beds below 1,000 feet in elevation. Each bed represents a separate flood episode that occurred between 16,000 and 12,000 years ago (Waite, 1980). The largest area of these deposits is in the southeastern corner of the survey area. Other areas include terraces along the lower tributaries of Pine Creek, Rock Creek, the Klickitat River, and the White Salmon River.

Examples of soils that formed in silty lacustrine deposits are the Warden, Kennewick, Sagehill, Kahlottus, and Hood series. Dallesport and Malaga soils formed in gravelly outwash deposits of sand and gravel. An ochric or mollic epipedon and a weak cambic horizon are evidence of the relatively young age of these soils. Hood soils, which are in the White Salmon River drainageway, have an argillic horizon that is evidence of more development.

Alluvial deposits (on flood plains).—Post-glacial or Holocene (recent) modifications

of the landscape include very localized deposition of alluvium. The young soils on flood plains exhibit little development other than an accumulation of organic matter in the surface layer. The well drained Mondovi soils and the somewhat excessively drained Weirman soils are examples.

Climate

Climate is an active factor of soil formation. It affects soil formation by influencing the rate of weathering, production and decomposition of organic matter, leaching, and erosion. The primary climatic factors in soil formation are temperature and precipitation. The period in which biological and chemical activity occurs depends on the length of time the soils are moist and have a favorable temperature. Generally, as elevation increases precipitation increases and temperature decreases. Precipitation is highest in the northwest corner of the survey area, and it decreases rapidly toward the east.

The soils in this survey area formed under a wide range of precipitation and temperature. Precipitation regimes are aridic and xeric, ranging from 6 to 65 inches of rainfall annually. Temperature regimes are mesic, frigid, and cryic. The soils are not always moist when favorable temperatures occur. The moisture regime depends on the amount and timing of precipitation and on the characteristics of the soil. Temperature is a measure of heat that is available for chemical, physical, and biological processes involved in soil development. If water is not a limiting factor, the rate of mineral weathering increases as temperature increases. Higher temperatures also hasten decomposition of organic matter by oxidation, thus reducing the content of organic matter.

The kind and degree of leaching and eluviation depend on the amount of water percolation in the soils under present and past climatic conditions and are reflected in the characteristics of the soils. Percolation is influenced by the amount of precipitation, rate of evapotranspiration, and length of the frost-free period. The higher evapotranspiration rate in areas with an aridic moisture regime limits leaching and under some conditions causes upward movement of soluble salts. Translocation of clay particles and a seasonal dry period in areas that have a xeric moisture regime have contributed to the development of an argillic horizon in many of the soils in the survey area.

The survey area is greatly influenced by weather patterns in the Columbia River Gorge. Storm systems that develop over the Pacific Ocean produce cool, moist winds in winter and warm, dry winds in summer. Weather systems generated in intermountain areas produce cold, dry winds in winter and hot, dry winds in summer.

Winters are moist and comparatively mild at the lower elevations, but temperatures are cooler at the higher elevations. Soil temperatures are relatively low early and late in the growing season, which increases the effectiveness of soil moisture because of the reduced rate of evapotranspiration.

The drier southeastern part of the survey area generally has a mean annual precipitation of 6 to 9 inches and a mean annual air temperature of about 52 degrees F. The soils have an aridic moisture regime and a mesic temperature regime. The surface layer of the soils in this part has less accumulation of organic matter than that of soils in other parts of the survey area. Soils in this part have an ochric epipedon and a cambic horizon. Precipitation has been adequate to leach the more soluble salts, but it has not been sufficient to leach calcium carbonate from most of the soils, except in very shallow or sandy soils. Examples of soils in the 6- to 9-inch precipitation zone are the Warden and Prosser series. These soils are classified as Xeric Haplocambids.

To the north and west, the mean annual precipitation increases to about 9 to 12 inches and the mean annual air temperature decreases to about 50 degrees F. The

soils have an aridic moisture regime that borders on xeric and a mesic temperature regime. The increase in precipitation and decrease in air temperature result in an environment that favors more plant growth and a higher content of organic matter in the surface layer. The soils have a mollic epipedon and an argillic or cambic horizon. Generally, more leaching of carbonates has occurred but precipitation has not been sufficient to entirely leach calcium carbonate from the soils, except in very shallow and shallow soils. Examples of soils in the 9- to 12-inch precipitation zone are the Mikkalo, Ritzville, and Renslow series. These soils are classified as Calcic Haploxerolls or Calciargidic Argixerolls.

In areas that receive about 12 to 15 inches of precipitation annually, leaching of carbonates is much greater. The mean annual air temperature is about 48 degrees F. The soils have a mesic temperature regime and a xeric moisture regime. The mollic epipedon is darker and contains more organic matter than that in soils that have an aridic moisture regime. The soils have a thicker mollic epipedon and an argillic horizon. An example is the Van Nostern series, which is classified as Pachic Argixerolls. Calcium carbonate has been leached from most of the soils in this precipitation zone, except in the very deep Colockum and Broadax soils or soils that have a restrictive layer, such as the Morrow series. The Colockum, Broadax, and Morrow soils are classified as Calcic Argixerolls.

In areas that receive about 15 to 18 inches of precipitation annually, all carbonates have been leached from the soil profile and a well-defined argillic horizon has formed. The mean annual air temperature is about 49 degrees F. The soils have a mesic temperature regime and a xeric moisture regime. The soils have a mollic epipedon, but base saturation is low as a result of leaching. The argillic horizon generally is clay loam and has well-defined structure. Examples of soils in this precipitation zone are the Goldendale, Lorena, and Swalecreek series. These soils are classified as Ultic Argixerolls or Pachic Ultic Argixerolls.

An area that receives 18 to 25 inches of precipitation annually is in the transition zone from grassland to forestland. This area has a mean annual air temperature of about 49 degrees F. The soils have a mesic temperature regime and a xeric moisture regime. The soils in areas of grassland have a mollic epipedon, but the soils in areas of forestland have an accumulation of organic matter that occurs as a layer of duff and have an ochric epipedon. Base saturation is low as a result of leaching. The Leidl, Legall, and Hyprairie series are examples of soils that formed under grassland vegetation. They are classified as Vitrandic, Pachic Ultic, or Ultic Argixerolls. The Gunn series is an example of soils that formed under forestland vegetation. They are classified as Ultic Haploxerolls.

Areas that receive 25 to 45 inches of precipitation annually are dominantly forestland. The mean annual air temperature is about 47 degrees F for soils that have a mesic temperature regime, 43 degrees for soils that have a frigid temperature regime, and 39 degrees for soils that have a cryic temperature regime. Soils in this precipitation zone have a xeric soil moisture regime. The soils have developed an ochric or umbric epipedon under moderate to dense coniferous forestland vegetation. Base saturation is low as a result of leaching. The McGowan and Jebe series are examples of soils that have a mesic temperature regime; the Kaiders, Panak, and Satus series are examples of soils that have a frigid temperature regime; and the Pird series is an example of soils that have a cryic temperature regime. These soils are classified as Ultic Argixerolls, Andic Haploxerolls, Vitrandic Haploxerolls, Ultic Haploxerolls, or Humic Xeric Vitricryands.

Areas that receive about 45 to 65 inches of precipitation annually are in the transition zone from a xeric to udic moisture regime. The mean annual air temperature is about 43 degrees F for soils that have a frigid temperature regime and 46 degrees for soils that have a mesic temperature regime. An umbric epipedon has developed under the dense coniferous forestland vegetation. Base saturation is low

as a result of leaching. The Kingtain, McElroy, and Timberhead series are examples of soils that have developed under this type of vegetation. They are classified as Alfic Humic Vitrixerands, Humic Vitrixerands, or Andic Dystroxerepts.

Topography

Topography influences soil formation through its effect on drainage, erosion, the depth of the soil, the infiltration of water into the soil, the microclimate of the soil, and the amount and type of vegetation on the soil. Slope, position, and aspect are also important elements of topography.

Much of the water that falls on soils percolates through them, although some evaporates. Runoff generally increases as slope increases. The more water that enters the soil, the greater the depth to which the soil is leached and weathered. Topography, which influences variations in exposure to sun and wind and air drainage, results in important differences in vegetation and soil properties. For example, south-facing slopes receive more direct radiation from the sun than do north-facing slopes. Consequently, south-facing slopes are warmer and drier and the soils have a thinner surface layer. Examples of soils on dominantly south-facing slopes are the Lickskillet, Horseflat, and Leidl series. Soils on dominantly north-facing slopes have a thicker surface layer and a thick mollic epipedon. Examples are the Dillcourt, Kiakus, and Oreoke series.

Aspect also influences the amount of loess that accumulates. South- and southwest-facing slopes are exposed to the prevailing wind; thus, there is less accumulation of loess on these slopes than on north-facing slopes. South- and southwest-facing slopes have a higher evapotranspiration rate; therefore, the density of plants is lower. An example of soils on convex, south- and southwest-facing slopes is the shallow soils of the Starbuck series. An example of soils on north-facing slopes is the Ritzville series.

Local relief modifies the moisture regime of soils. This is especially evident in soils on flood plains and in depressions and drainageways. Runoff from adjacent upland soils accumulates in the lower lying areas. An example is soils of the Setnum series in depressions.

Living Organisms

Living organisms are active in soil formation. Plants, micro-organisms, and animals, including man, are important in determining the rate and extent of soil formation. Accumulation of organic matter, nutrient cycling, profile mixing, and structure of soil aggregates are all affected by the organisms that live on or in the soil.

Plants provide cover that reduces runoff and erosion and helps to stabilize the soil surface. Plant roots penetrate the soil and improve the permeability and aeration of the soil.

The soils in this survey area formed in four major vegetation zones—Wyoming big sagebrush-bluebunch wheatgrass, threetip sagebrush-Idaho fescue, ponderosa pine-Oregon white oak-pinegrass, and grand fir-vine maple. These plant communities generally grow on moderately deep to very deep, well drained, medium textured soils.

The Wyoming big sagebrush-bluebunch wheatgrass plant community occurs on soils that have an aridic moisture regime. The mean annual precipitation is 6 to 12 inches. The plant community in the driest areas (6 to 9 inches of precipitation) produces less organic matter, and the soils in these areas have an ochric epipedon. The Warden series is an example. In areas that receive 9 to 12 inches of precipitation, the plant community produces more organic matter and the soils have a mollic epipedon. The Benwy and Mikkalo series are examples.

The threetip sagebrush-Idaho fescue plant community occurs on soils that have a

xeric moisture regime. The mean annual precipitation is 12 to 18 inches. The soils that support this plant community have a higher organic matter content than do those that support the Wyoming big sagebrush-bluebunch wheatgrass plant community. These soils have a mollic or pachic epipedon. The Van Nostern and Morrow series are examples.

The ponderosa pine-Oregon white oak-pinegrass plant community occurs on soils that have a xeric moisture regime. The mean annual precipitation is 18 to 45 inches. The soils that support this plant community have low base saturation as a result of leaching and adsorption of bases by trees. The soils have an ochric or mollic epipedon. The Gunn and Balake series are examples.

The grand fir-vine maple plant community occurs on soils that are in a transition zone from a xeric to udic moisture regime. The mean annual precipitation is 45 to 65 inches. These soils have low base saturation. They have an umbric epipedon. The Kingtain and Timberhead series are examples.

Man has influenced soil development in the survey area. Tillage, livestock grazing, and man-caused fires have disturbed the protective vegetative cover, exposing soils to erosion. Tillage and soil compaction by grazing livestock have also altered the soil structure. Infiltration and permeability are affected by changes in the protective vegetative cover or by alteration of soil structure, resulting in an increase in runoff and erosion.

Time

Soil formation begins when hard rock is exposed on the earth's surface, alluvial sediment is above the level of the floodwater, or a fresh mantle of loess or volcanic ash is laid down. The influence of time commonly is expressed by the degree of horizon development. Generally, the more mature soils have a higher number of diagnostic horizons and are thicker. The length of time required for soils to develop depends on the nature of the parent material and the intensity of the soil-forming factors.

Parent material in the survey area includes basalt of the Miocene (10 to 25 million years old), the Ellensburg Formation (4.0 to 12.5 million years old), fanglomerate of late Pliocene or early Pleistocene (2 to 3 million years old), Simcoe Basalt (0.9 million years old), Spokane flood deposits (12,000 to 16,000 years old), and alluvium and loess that is post-glacial or of the Holocene (less than 10,000 years old).

Soils on hillslopes, summits, and benches are old enough to form an ochric epipedon and a cambic horizon in areas that receive 6 to 9 inches of precipitation annually and a mollic epipedon and argillic horizon in areas that receive more than 9 inches of precipitation annually. Diagnostic horizons in the soils of this survey area have been forming since the late Pliocene or early Pleistocene. A duripan formed in fanglomerate during this time. Soils in areas that have been stable for longer periods of time have an argillic horizon (pre-Bull Lake age) that is more strongly developed.

Soils on terraces and benches that formed in glacial Lake Missoula flood deposits and post-scabland loess have had enough time to form an ochric epipedon and to leach calcium carbonate downward to form a cambic horizon. An example of soils on terraces is the Warden series. In areas of similar deposits where the mean annual precipitation is about 30 inches, enough time has elapsed to remove all carbonates and translocate clay minerals to form an argillic horizon. An example is the Hood series.

Soils that formed in volcanic ash deposits have weathered long enough for andic soil properties to develop. The Chemawa and Firoke series are examples.

Most soils on flood plains, alluvial fans, and low terraces are young. Soils that formed in Holocene alluvium show little development other than the accumulation of organic matter in the surface layer. The Mondovi and Weirman series are examples.

References

- American Association of State Highway and Transportation Officials (AASHTO). 2000. Standard specifications for transportation materials and methods of sampling and testing. 20th edition, 2 volumes.
- American Society for Testing and Materials (ASTM). 2001. Standard classification of soils for engineering purposes. ASTM Standard D 2487-00.
- Brown, J.C. 1979. Geology and water resources of Klickitat County, Washington. Washington Division of Water Resources Water Supply Bulletin 50.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. February 24, 1995. Hydric soils of the United States.
- Franklin, Jerry F., and C.T. Dyrness. 1973. Natural vegetation of Oregon and Washington. U.S. Department of Agriculture, Pacific Northwest Forest and Range Experiment Station General Technical Report PNW-8.
- Howard, James O. 1973. The timber resources of Central Washington. U.S. Department of Agriculture, Pacific Northwest Experiment Station Research Paper PNW-45.
- Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. Version 5.0, 2002. Field indicators of hydric soils in the United States.
- Lillybridge, Terry R., Bernard L. Kovalchik, Clinton K. Williams, and Bradley G. Smith. 1995. Field guide for forested plant associations of the Wenatchee National Forest. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station General Technical Report PNW-GTR-359.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Portland Cement Association. 1973. PCA soil primer.
- Sheppard, R.A. 1960. Petrology of the Simcoe Mountains area, Washington. Unpublished Ph.D. dissertation, Johns Hopkins University.
- Simonson, Roy W. 1959. Outline of a generalized theory of soil genesis. Soil Science Society of America Proceedings 23: 152-156.

- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
- Soil Survey Staff. 1998. Keys to soil taxonomy. 8th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.
- Sylvester, K.J. 1978. Geophysical investigations of the hydrogeology of the Goldendale-Centerville areas, Washington. M.S. thesis, Washington State University.
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Forest Service. January 1997. Washington's public and private forests. Pacific Northwest Research Station Research Bulletin PNW-RB-218.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. <http://soils.usda.gov/technical/nfmanual/>
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.glti.nrcs.usda.gov/technical/publications/nrph.html>
- United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. <http://soils.usda.gov/technical/handbook/>
- United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.
- United States Department of Agriculture, Soil Conservation Service. 1981. Land resource regions and major land resource areas of the United States. U.S. Department of Agriculture Handbook 296.
- Waitt, Richard B., Jr. 1980. About forty last-glacial Lake Missoula Jokulhlaups through southern Washington. *In* Journal of Geology.

Glossary

ABC soil. A soil having an A, a B, and a C horizon.

Abrupt textural change. A soil horizon boundary or thin transitional zone characterized by a considerable increase in clay that occurs at the contact between a surface layer, subsurface layer, subsoil, or substratum.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Andic soil properties. A collection of physical and chemical properties given in "Keys to Soil Taxonomy" that is the taxonomic criteria for the Andisol order.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 3.75
Moderate	3.75 to 5
Moderately high	5 to 8
High	more than 8

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Basin. A low area in the earth's crust, of tectonic origin, in which sediment has accumulated.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Calcic horizon. An illuvial horizon in which secondary calcium carbonate or other carbonates have accumulated.

Calcium carbonate equivalent. The amount of calcium carbonate in a soil measured by treating the soil sample with hydrochloric acid (HCL). The evolved carbon dioxide (CO₂) is measured, and the amount of carbonate is then calculated as calcium carbonate (CaCO₃).

Canopy. The leafy crown of trees or shrubs. (See Crown.)

- Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Carbonates.** Chemical compounds containing the carbonate ion CO_3 in combination with bases such as calcium, magnesium, potassium, and sodium.
- Catena.** A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- Cinder.** A glassy vesicular pyroclastic volcanic fragment that is 2 millimeters or more in all dimensions and is strongly cemented or has a stronger degree of cementation. It has an apparent specific gravity (including vesicles) of more than 1.0 and less than 2.0.
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Coarse textured soil.** Sand or loamy sand.
- Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
- COLE (coefficient of linear extensibility).** See Linear extensibility.
- Colluvium.** Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide

or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately

deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Durinodes. Nodules that are weakly cemented to indurated with silica oxide (SiO₂) and are 1 centimeter in diameter or more.

Duripan. A subsurface horizon that is cemented with silica, commonly opal or microcrystalline, to the extent that less than 50 percent of the volume of air-dry fragments does not slake upon prolonged soaking in water or hydrochloric acid (HCL).

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of

moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or

angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head out. To form a flower head.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or

unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state.

Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluv. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Krotovinas. Irregular, tubular streaks within one layer of soil material that have been transported from another layer. They are a result of the filling of tunnels made by burrowing animals.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landform. Any physical, recognizable form or feature on the earth's surface that has a characteristic shape and range in composition and is produced by natural causes; it can span a wide range in size. Landforms provide an empirical description of similar portions of the earth's surface.

Landscape (soils). An assemblage, group, or family of spatially related, natural landforms over a relatively large area; the land surface which the eye can comprehend in a single view.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Major land resource area (MLRA). A broad geographic land area characterized by a particular pattern of soils, geology, climate, water resources, and land use. An area is typically continuous, but small separate areas can occur.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size.

Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*.

The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Pararock fragments. Fragments of rock that are 2 millimeters in diameter or more (e.g., paragravel, paracobble, or parastone). Pararock fragments have a moderately cemented to extremely weakly cemented rupture-resistance class.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

- Plant association.** A kind of climax plant community consisting of stands with essentially the same dominant species in corresponding layers.
- Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
- Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.
- Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.
- Plowpan.** A compacted layer formed in the soil directly below the plowed layer.
- Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.
- Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
- Potential native plant community.** See Climax plant community.
- Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.
- Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.
- Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.
- Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.
- Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.
- Pumice.** A light-colored, vesicular, glassy pararock fragment. The fragments are more than 2 millimeters in diameter and commonly have the composition of rhyolite. Pumice commonly has a specific gravity of <1.0 and is thereby sufficiently buoyant to float on water.
- Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.
- Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:
- | | |
|------------------------------|----------------|
| Ultra acid | less than 3.5 |
| Extremely acid | 3.5 to 4.4 |
| Very strongly acid | 4.5 to 5.0 |
| Strongly acid | 5.1 to 5.5 |
| Moderately acid | 5.6 to 6.0 |
| Slightly acid | 6.1 to 6.5 |
| Neutral | 6.6 to 7.3 |
| Slightly alkaline | 7.4 to 7.8 |
| Moderately alkaline | 7.9 to 8.4 |
| Strongly alkaline | 8.5 to 9.0 |
| Very strongly alkaline | 9.1 and higher |

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Restrictive feature. A nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly reduce the movement of water and/or air through the soil or that otherwise provide an unfavorable root environment.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas that consist of cobbles, stones, and boulders, commonly at the base of mountains.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed

from soft masses of calcium carbonate. There are many intermediate types.

Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike. All the soils of a given series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 10 percent
Strongly sloping	10 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 45 percent
Very steep	45 percent and higher

Classes for complex slopes are as follows:

Nearly level	0 to 2 percent
Undulating	2 to 4 percent
Gently rolling	4 to 8 percent
Rolling	8 to 15 percent
Hilly	15 to 30 percent
Steep	30 to 45 percent
Very steep	45 percent and higher

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $\text{Ca}^{++} + \text{Mg}^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Umbric epipedon. A thick, dark-colored, humus-rich surface horizon that has low base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Volcanic ash. Unconsolidated, pyroclastic material that is less than 2 millimeters in all dimensions.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1B	Satus stony ashy loam, 5 to 30 percent slopes-----	13,797	1.4
2C	Satus stony ashy loam, 30 to 60 percent slopes-----	12,123	1.2
3C	Pird gravelly ashy loam, 30 to 60 percent slopes-----	2,094	0.2
4B	Grandpon ashy loam, 8 to 30 percent slopes-----	3,349	0.3
6B	Berson gravelly ashy loam, 5 to 30 percent slopes-----	15,141	1.5
7B	Bocker-Klicko complex, 2 to 30 percent slopes-----	9,621	0.9
7C	Sapkin very cobbly loam, 5 to 40 percent slopes-----	285	*
8C	Berson gravelly ashy loam, 30 to 45 percent slopes-----	8,246	0.8
9	Quincy fine sand, 2 to 25 percent slopes, eroded-----	1,155	0.1
9B	Pird gravelly ashy loam, 8 to 30 percent slopes-----	1,531	0.2
9C	Quincy-Rock outcrop complex, 25 to 60 percent slopes-----	492	*
10	Pits, gravel-----	212	*
10B	Andic Haplocryalfs, hilly-----	2,633	0.3
11	Xerands, steep-----	849	*
11A	Xerands, low precipitation, steep south slopes-----	1,591	0.2
11B	Xerands, low precipitation, steep north slopes-----	659	*
11C	Xerands, cool, steep-----	756	*
12	Legall cobbly loam, 5 to 30 percent slopes-----	1,336	0.1
12A	Tekison-Rock outcrop complex, 30 to 65 percent slopes-----	2,640	0.3
12B	Maydol very stony loam, 5 to 30 percent slopes-----	9,447	0.9
12C	Legall-Rock outcrop-Rubble land complex, 30 to 65 percent slopes-----	4,761	0.5
12D	Lyville bouldery loam, 2 to 20 percent slopes-----	5,887	0.6
12E	Rock outcrop-Rubble land-Legall complex, 30 to 75 percent slopes-----	1,575	0.2
12F	Lyville-Rock outcrop complex, 30 to 65 percent slopes-----	1,259	0.1
13B	Itat cobbly loam, 5 to 30 percent slopes-----	15,597	1.5
13C	Itat cobbly loam, 30 to 45 percent slopes-----	3,601	0.4
14A	Rockly extremely stony loam, 2 to 15 percent slopes-----	772	*
14B	Rockly very gravelly loam, 2 to 30 percent slopes-----	10,397	1.0
15	Rockly-Rock outcrop complex, 35 to 80 percent slopes-----	10,041	1.0
16	Sauter gravelly loam, 30 to 75 percent slopes-----	4,720	0.5
16B	Suta bouldery loam, 40 to 60 percent slopes-----	2,670	0.3
16C	Sauter-Rock outcrop-Rubble land complex, 30 to 75 percent slopes-----	1,699	0.2
16E	Rock outcrop-Rubble land-Sauter complex, 30 to 75 percent slopes-----	2,249	0.2
17A	Presher cobbly loam, 2 to 10 percent slopes-----	5,871	0.6
17B	Presher stony loam, 8 to 30 percent slopes-----	4,634	0.5
17D	Quiden stony loam, 2 to 20 percent slopes-----	10,365	1.0
18A	Kaiders stony loam, 5 to 30 percent slopes-----	1,401	0.1
18B	Kaiders cobbly loam, 8 to 30 percent slopes-----	4,939	0.5
18C	Kaiders stony loam, 30 to 45 percent slopes-----	1,200	0.1
19	Kiakus-Munset-Wahoo complex, 0 to 30 percent slopes-----	7,327	0.7
20	Nook silt loam, 0 to 5 percent slopes-----	2,953	0.3
20A	Threecreeks silt loam, 0 to 3 percent slopes-----	387	*
21	Rock outcrop-Rubble land complex, very steep-----	7,299	0.7
22	Fluentic Haploxerolls-Riverwash complex, nearly level-----	4,831	0.5
23	Gunn loam, 2 to 8 percent slopes-----	13,975	1.4
23A	Gunn stony loam, 8 to 30 percent slopes-----	9,490	0.9
23B	Gunn loam, 8 to 30 percent slopes-----	11,405	1.1
23C	Gunn stony loam, 0 to 8 percent slopes-----	799	*
24	Rockly-Itat complex, 8 to 30 percent slopes-----	639	*
25	Leidl-Dillcourt-Rock outcrop complex, 30 to 75 percent slopes-----	12,653	1.2
25A	Leidl extremely cobbly ashy loam, 2 to 30 percent slopes-----	8,324	0.8
25B	Leidl-Oreoke complex, 30 to 75 percent slopes-----	3,406	0.3
25C	Leidl-Dillcourt complex, 30 to 75 percent north slopes-----	1,297	0.1
26	Mazdale very stony ashy loam, 30 to 75 percent slopes-----	513	*
26C	Mazdale-Rock outcrop-Rubble land complex, 50 to 90 percent slopes-----	742	*
26E	Rock outcrop-Rubble land-Mazdale complex, 50 to 90 percent slopes-----	538	*
27B	Yedlick stony ashy sandy loam, 8 to 30 percent slopes-----	391	*
28	Trelk ashy loam, 2 to 10 percent slopes-----	119	*
30	Rockly-Kiakus complex, 2 to 8 percent slopes-----	11,035	1.1
30A	Rockly-Lorena complex, 2 to 15 percent slopes-----	22,434	2.2
30B	Rockly-Lorena complex, extremely stony, 2 to 15 percent slopes-----	3,068	0.3

See footnote at end of table.

Table 1.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
32A	Beezee cobbly loam, low precipitation, 30 to 65 percent slopes-----	585	*
32B	Beezee cobbly loam, 30 to 65 percent slopes-----	4,450	0.4
33	Riverwash-----	63	*
33A	Haploxerolls-Fluvaquents complex, nearly level-----	678	*
36	Jebe gravelly loam, 30 to 75 percent slopes-----	4,275	0.4
36C	Jebe-Rock outcrop-Rubble land complex, 50 to 90 percent slopes-----	516	*
39A	Hyprairie silt loam, 2 to 5 percent slopes-----	822	*
39B	Hyprairie silt loam, 5 to 10 percent slopes-----	891	*
39C	Hyprairie silt loam, 10 to 15 percent slopes-----	943	*
39D	Hyprairie silt loam, 15 to 30 percent slopes-----	376	*
41	Oreoke-Legall complex, 30 to 75 percent slopes-----	8,735	0.9
42	Oreoke-Beezee complex, 30 to 75 percent slopes-----	2,451	0.2
43	Oreoke-Colockum complex, 30 to 60 percent slopes-----	574	*
49A	Kiakus silt loam, 2 to 5 percent slopes-----	1,235	0.1
49B	Kiakus silt loam, 5 to 10 percent slopes-----	2,990	0.3
49C	Kiakus silt loam, 10 to 15 percent slopes-----	2,187	0.2
49D	Kiakus silt loam, 15 to 30 percent slopes-----	1,015	0.1
49E	Kiakus-Rockly complex, 2 to 15 percent slopes-----	294	*
55	Firoke ashy fine sandy loam, 10 to 40 percent slopes, stony-----	593	*
55A	Kingtain stony ashy loam, 8 to 45 percent slopes-----	2,017	0.2
57	Firoke ashy fine sandy loam, 5 to 30 percent slopes, stony-----	6,243	0.6
59B	Bercumb cobbly ashy loam, 5 to 30 percent slopes-----	1,599	0.2
59C	Bercumb cobbly ashy loam, 30 to 65 percent slopes-----	922	*
59D	Bercumb cobbly ashy loam, 30 to 75 percent north slopes-----	752	*
61	Grayland silty clay loam, 0 to 1 percent slopes-----	56	*
63	Fanal ashy sandy loam, 2 to 8 percent slopes-----	1,431	0.1
65	Leidl extremely cobbly ashy loam, 30 to 75 percent slopes-----	622	*
65B	Dystroxerepts, very steep-----	1,321	0.1
66	Flotag gravelly ashy sandy loam, 0 to 2 percent slopes-----	2,601	0.3
68	Fluvaquentic Endoaquolls, nearly level-----	1,881	0.2
69	Goldendale silt loam, basalt substratum, 2 to 5 percent slopes-----	11,243	1.1
69A	Goldendale silt loam, basalt substratum, 5 to 10 percent slopes-----	12,088	1.2
69B	Goldendale silt loam, basalt substratum, 10 to 15 percent slopes-----	2,660	0.3
69C	Goldendale silt loam, basalt substratum, 15 to 30 percent slopes-----	17	*
72	Aqualfs, nearly level-----	1,418	0.1
73A	Dalig loam, 2 to 8 percent slopes-----	2,640	0.3
73B	Dalig loam, 8 to 15 percent slopes-----	12,989	1.3
73C	Dalig loam, 15 to 30 percent slopes-----	3,213	0.3
74A	Tigit ashy loam, 2 to 8 percent slopes-----	975	*
74B	Tigit ashy loam, 8 to 15 percent slopes-----	5,600	0.6
74C	Tigit ashy loam, 15 to 30 percent slopes-----	3,963	0.4
76	Underwood ashy loam, 2 to 8 percent slopes-----	5,582	0.6
76A	Underwood ashy loam, 8 to 15 percent slopes-----	15,463	1.5
76B	Underwood ashy loam, 15 to 30 percent slopes-----	12,429	1.2
76C	Underwood gravelly ashy loam, 30 to 50 percent slopes-----	8,368	0.8
77	McGowan ashy loam, 8 to 15 percent slopes-----	10,538	1.0
77A	McGowan ashy loam, 2 to 8 percent slopes-----	9,341	0.9
80	Troutlake ashy loam, 1 to 5 percent slopes-----	1,114	0.1
81	Sugarbowl ashy loam, 5 to 30 percent slopes-----	1,582	0.2
82B	Kingtain gravelly ashy loam, 8 to 30 percent slopes-----	4,346	0.4
82D	Kingtain cobbly ashy loam, 30 to 65 percent slopes-----	7,832	0.8
82E	Kingtain-Rock outcrop complex, 30 to 75 percent slopes-----	2,991	0.3
83	Volash ashy loam, 2 to 15 percent slopes-----	3,130	0.3
84	Trouter stony ashy loam, 2 to 8 percent slopes-----	3,230	0.3
84A	Trouter-Rock outcrop complex, 2 to 15 percent slopes-----	1,577	0.2
86A	Chemawa ashy loam, 2 to 8 percent slopes-----	1,882	0.2
86B	Chemawa ashy loam, 8 to 15 percent slopes-----	1,945	0.2
86C	Chemawa ashy loam, 15 to 30 percent slopes-----	2,680	0.3
86D	Chemawa gravelly ashy loam, 30 to 45 percent slopes-----	1,059	0.1
87A	Eagreek paragravelly loam, 15 to 50 percent slopes-----	995	*
88A	Timberhead gravelly ashy loam, 5 to 30 percent slopes-----	4,458	0.4

See footnote at end of table.

Table 1.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
88B	Timberhead gravelly ashy loam, 30 to 65 percent slopes-----	1,964	0.2
89	McElroy gravelly ashy loam, 30 to 65 percent slopes-----	3,526	0.3
89B	McElroy-Rock outcrop complex, 50 to 90 percent slopes-----	814	*
90	Hood loam, 3 to 8 percent slopes-----	1,914	0.2
90A	Hood loam, 8 to 15 percent slopes-----	1,510	0.1
90B	Hood loam, 15 to 30 percent slopes-----	1,268	0.1
90C	Hood loam, 30 to 65 percent slopes-----	421	*
92	Husum gravelly ashy loam, 0 to 5 percent slopes-----	1,063	0.1
92A	Husum gravelly ashy loam, 5 to 15 percent slopes-----	408	*
92B	Husum gravelly ashy loam, nonflooded, 0 to 5 percent slopes-----	710	*
93	Goldendale silt loam, 2 to 5 percent slopes-----	7,569	0.7
93A	Goldendale silt loam, 5 to 10 percent slopes-----	5,425	0.5
93B	Goldendale silt loam, 10 to 15 percent slopes-----	1,471	0.1
93C	Goldendale silt loam, 15 to 30 percent slopes-----	967	*
93D	Goldendale silt loam, 30 to 65 percent slopes-----	342	*
94	Lorena silt loam, 2 to 5 percent slopes-----	6,345	0.6
94A	Lorena silt loam, 5 to 10 percent slopes-----	4,087	0.4
94B	Lorena silt loam, 10 to 15 percent slopes-----	807	*
94C	Lorena silt loam, 15 to 30 percent slopes-----	204	*
94E	Lorena-Rockly complex, 15 to 30 percent slopes-----	755	*
95	Konert silt loam, drained, 0 to 2 percent slopes-----	1,112	0.1
95A	Konert silt loam, 0 to 2 percent slopes-----	915	*
96	Blockhouse silt loam, 0 to 5 percent slopes-----	3,884	0.4
97	Munset stony silt loam, 0 to 5 percent slopes-----	6,803	0.7
97A	Setnum silt loam, 0 to 3 percent slopes-----	5,390	0.5
97B	Blockhouse-Munset complex, 5 to 10 percent slopes-----	343	*
99	Dallesport fine sandy loam, 0 to 8 percent slopes-----	388	*
100	Dallesport very cobbly fine sandy loam, 0 to 8 percent slopes-----	1,116	0.1
101	Dallesport very cobbly fine sandy loam, 8 to 15 percent slopes-----	553	*
102	Dallesport gravelly fine sandy loam, 15 to 30 percent slopes-----	583	*
103	Dallesport-Rock outcrop complex, 0 to 15 percent slopes-----	520	*
104	Dallesport-Rock outcrop complex, 15 to 30 percent slopes-----	82	*
105	Ewall loamy sand, 0 to 8 percent slopes-----	2,238	0.2
106	Ewall loamy sand, 8 to 15 percent slopes-----	194	*
107	Ewall loamy sand, 15 to 30 percent slopes-----	225	*
108	Ewall-Rock outcrop complex, 0 to 15 percent slopes-----	1,385	0.1
109	Ewall-Rock outcrop complex, 15 to 30 percent slopes-----	374	*
113B	Tekison stony loam, 5 to 30 percent slopes-----	1,929	0.2
113C	Tekison stony loam, 30 to 45 percent slopes-----	3,196	0.3
115	Aquolls, nearly level-----	427	*
116	Aquolls-Rock outcrop complex, nearly level-----	549	*
120	Rock outcrop-Haploxerolls complex, hilly-----	7,475	0.7
121	Rock outcrop-Haploxerolls complex, steep-----	2,467	0.2
122	Rock outcrop-Haploxerolls complex, very steep-----	145	*
123A	Galiente loam, 2 to 8 percent slopes-----	798	*
125	Scooteney silt loam, 2 to 5 percent slopes-----	10	*
127	Scooteney cobbly silt loam, 0 to 5 percent slopes-----	1	*
130	Oxy silt loam, 0 to 2 percent slopes-----	2,156	0.2
131	Onyx silt loam, 0 to 2 percent slopes-----	1,451	0.1
132	Esquatzel silt loam, 2 to 5 percent slopes-----	20	*
136	Bickleton silt loam, 2 to 5 percent slopes-----	2,837	0.3
137	Bickleton silt loam, 5 to 15 percent slopes-----	1,009	*
140	Broadax silt loam, 2 to 5 percent slopes-----	8,408	0.8
141	Broadax silt loam, 5 to 10 percent slopes-----	193	*
150	Morrow silt loam, 2 to 5 percent slopes-----	8,034	0.8
151	Morrow silt loam, 5 to 10 percent slopes-----	680	*
155	Morrow-Bakeoven complex, 2 to 15 percent slopes-----	6,729	0.7
159B	Panak ashy loam, 5 to 30 percent slopes-----	3,378	0.3
159C	Panak cobbly ashy loam, 30 to 50 percent slopes-----	1,954	0.2
159D	Panak cobbly ashy loam, 30 to 65 percent north slopes-----	91	*
161	Van Nostern silt loam, 5 to 10 percent north slopes-----	1,264	0.1

See footnote at end of table.

Table 1.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
181	Umapine silt loam, 0 to 2 percent slopes-----	1,390	0.1
187	Cleman very fine sandy loam, 2 to 5 percent slopes-----	303	*
190	Weirman fine sandy loam, 0 to 5 percent slopes-----	2,195	0.2
193	Swalecreek silt loam, 0 to 2 percent slopes-----	3,768	0.4
194	Swalecreek silt loam, 2 to 5 percent slopes-----	3,980	0.4
195	Swalecreek-Niva complex, 5 to 10 percent slopes-----	1,633	0.2
196	Mondovi silt loam, 0 to 2 percent slopes-----	1,719	0.2
200	Malaga gravelly fine sandy loam, 0 to 15 percent slopes-----	405	*
211	Hezel loamy fine sand, 0 to 2 percent slopes-----	702	*
212	Hezel loamy fine sand, 2 to 15 percent slopes-----	737	*
213	Hezel loamy fine sand, 15 to 30 percent slopes-----	577	*
225	Kiona stony very fine sandy loam, 5 to 30 percent slopes-----	1,533	0.2
226	Kiona-Rock outcrop complex, 30 to 65 percent slopes-----	3,568	0.4
227	Cheviot very stony silt loam, 5 to 30 percent slopes-----	895	*
228	Borfin cobbly clay loam, 30 to 50 percent slopes, stony-----	1,304	0.1
229	Cheviot-Wipple-Rock outcrop complex, 30 to 65 percent slopes-----	9,859	1.0
230	Cheviot-Ralls-Rock outcrop complex, 30 to 65 percent slopes-----	6,952	0.7
240	Niva silt loam, 5 to 15 percent slopes-----	836	*
241	Niva silt loam, 15 to 30 percent north slopes-----	284	*
242	Niva silt loam, 15 to 30 percent south slopes-----	568	*
250	Van Nostern silt loam, 2 to 5 percent slopes-----	12,027	1.2
251	Van Nostern silt loam, 5 to 10 percent slopes-----	797	*
255	Van Nostern-Bakeoven complex, 2 to 15 percent slopes-----	18,430	1.8
266	Van Nostern-Bakeoven complex, 15 to 30 percent slopes-----	1,384	0.1
274	Prosser silt loam, 2 to 5 percent slopes-----	3,511	0.3
275	Prosser silt loam, 5 to 15 percent slopes-----	852	*
277	Prosser-Bakeoven complex, 2 to 15 percent slopes-----	2,633	0.3
280	Quincy loamy sand, 0 to 2 percent slopes-----	369	*
281	Quincy loamy sand, 2 to 25 percent slopes-----	541	*
285	Quinton fine sand, 2 to 10 percent slopes-----	379	*
290	Koehler loamy fine sand, 0 to 10 percent slopes-----	300	*
296	Swalecreek silt loam, 10 to 15 percent slopes-----	158	*
297	Swalecreek silt loam, 15 to 30 percent slopes-----	352	*
298	Swalecreek-Rockly complex, 15 to 30 percent slopes-----	723	*
299	Swalecreek-Rockly complex, 30 to 60 percent slopes-----	3,048	0.3
304	Ritzville silt loam, 5 to 15 percent slopes-----	2,274	0.2
305	Ritzville silt loam, 15 to 30 percent slopes-----	1,230	0.1
306	Ritzville silt loam, 30 to 60 percent slopes-----	19	*
308	Ralls stony silt loam, 30 to 60 percent slopes-----	939	*
317	Reilloc-Sienna complex, 2 to 15 percent slopes-----	1,887	0.2
318	Sienna very gravelly loam, 15 to 30 percent slopes-----	320	*
329	Badge very stony silt loam, 15 to 45 percent south slopes-----	3,635	0.4
330	Badge very stony silt loam, 15 to 45 percent north slopes-----	2,459	0.2
343	Shano silt loam, 5 to 10 percent slopes-----	701	*
346	Shano silt loam, 2 to 5 percent slopes-----	479	*
347	Shano silt loam, 10 to 15 percent slopes-----	180	*
348	Shano silt loam, 15 to 30 percent slopes-----	151	*
350	Willis silt loam, 2 to 5 percent slopes-----	322	*
351	Willis silt loam, 5 to 10 percent slopes-----	170	*
352	Willis silt loam, 10 to 15 percent slopes-----	206	*
353	Willis silt loam, 15 to 30 percent slopes-----	189	*
360	Selah silt loam, 2 to 5 percent slopes-----	733	*
361	Selah silt loam, 5 to 10 percent slopes-----	832	*
362	Selah silt loam, 10 to 15 percent slopes-----	584	*
365	Selah-Bakeoven complex, 2 to 15 percent slopes-----	641	*
374	Thiessen very stony silt loam, 15 to 45 percent slopes-----	712	*
375	Lickskillet cobbly silt loam, 15 to 30 percent slopes-----	1,024	0.1
376	Lickskillet silt loam, 2 to 15 percent slopes-----	2,489	0.2
377	Lickskillet cobbly silt loam, 2 to 15 percent slopes-----	4,063	0.4
378	Starbuck-Rock outcrop complex, 0 to 45 percent slopes-----	1,757	0.2
379	Rock outcrop-Rubble land-Cheviot complex, 45 to 90 percent slopes-----	395	*

See footnote at end of table.

Table 1.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
380	Cheviot-Licksillet-Rock outcrop complex, 45 to 90 percent slopes-----	1,900	0.2
381	Ralls-Cheviot-Licksillet complex, 45 to 90 percent slopes-----	651	*
390	Renslow-Ralls-Wipple complex, 2 to 15 percent slopes-----	7,428	0.7
391	Broadax-Colockum-Tronsen complex, 5 to 15 percent slopes-----	1,390	0.1
394	Cheviot-Ralls-Wipple complex, 2 to 15 percent slopes-----	348	*
395	Cheviot-Ralls-Wipple complex, 15 to 30 percent south slopes-----	6,684	0.7
396	Renslow-Ralls-Wipple complex, 15 to 30 percent north slopes-----	1,847	0.2
420	Endicott-Moxee complex, 2 to 5 percent slopes-----	367	*
421	Endicott-Moxee complex, 5 to 10 percent slopes-----	593	*
422	Endicott-Moxee complex, 10 to 15 percent slopes-----	559	*
423	Endicott silt loam, 2 to 5 percent slopes-----	214	*
424	Endicott silt loam, 5 to 10 percent slopes-----	343	*
425	Endicott silt loam, 10 to 15 percent slopes-----	40	*
433	Warden silt loam, 5 to 10 percent slopes-----	3,358	0.3
435	Warden silt loam, 2 to 5 percent slopes-----	1,442	0.1
436	Warden silt loam, 0 to 2 percent slopes-----	11,294	1.1
437	Warden silt loam, 10 to 15 percent slopes-----	2,838	0.3
438	Warden silt loam, 15 to 30 percent slopes-----	4,438	0.4
440	Kahlotus silt loam, 2 to 5 percent slopes-----	335	*
441	Kahlotus silt loam, 5 to 10 percent slopes-----	713	*
442	Kahlotus silt loam, 10 to 15 percent slopes-----	424	*
443	Kahlotus silt loam, 15 to 30 percent slopes-----	498	*
444	Kahlotus-Kennewick complex, 30 to 60 percent slopes-----	371	*
445	Kahlotus-Rock outcrop complex, 2 to 15 percent slopes-----	261	*
450	Kennewick silt loam, 2 to 5 percent slopes-----	507	*
451	Kennewick silt loam, 5 to 10 percent slopes-----	17	*
453	Kennewick silt loam, 15 to 30 percent slopes-----	3,805	0.4
485	Bakeoven very cobbly loam, 15 to 30 percent slopes-----	66	*
487	Bakeoven very cobbly loam, 0 to 15 percent slopes-----	16,040	1.6
488	Camaspatch very cobbly silt loam, 15 to 45 percent slopes-----	651	*
489	Rock Creek stony silt loam, 0 to 30 percent slopes-----	163	*
495	Konner silt loam, 0 to 3 percent slopes-----	1,057	0.1
533	Sagehill fine sandy loam, 5 to 10 percent slopes-----	368	*
534	Sagehill fine sandy loam, 0 to 2 percent slopes-----	2,482	0.2
535	Sagehill-Kiona complex, 2 to 30 percent slopes-----	225	*
536	Sagehill fine sandy loam, 2 to 5 percent slopes-----	874	*
537	Sagehill fine sandy loam, 10 to 15 percent slopes-----	308	*
538	Sagehill fine sandy loam, 15 to 30 percent slopes-----	1,128	0.1
540	Walla Walla silt loam, 0 to 5 percent slopes-----	2,847	0.3
541	Walla Walla silt loam, 5 to 10 percent slopes-----	3,687	0.4
542	Walla Walla silt loam, 10 to 15 percent slopes-----	1,957	0.2
543	Walla Walla silt loam, 15 to 30 percent slopes-----	2,383	0.2
550	Walla Walla silt loam, cemented substratum, 0 to 5 percent slopes-----	123	*
551	Walla Walla silt loam, cemented substratum, 5 to 10 percent slopes-----	300	*
552	Walla Walla silt loam, cemented substratum, 10 to 15 percent slopes-----	673	*
555	Walla Walla very fine sandy loam, 0 to 5 percent slopes-----	46	*
556	Walla Walla very fine sandy loam, 5 to 10 percent slope-----	232	*
557	Walla Walla very fine sandy loam, 10 to 15 percent slopes-----	139	*
558	Walla Walla very fine sandy loam, 15 to 30 percent slopes-----	161	*
560	Olex silt loam, 15 to 30 percent slopes-----	510	*
561	Olex very cobbly silt loam, 30 to 65 percent slopes-----	334	*
562	Olex silt loam, 2 to 15 percent slopes-----	347	*
570	Bolicker silt loam, 15 to 30 percent slopes-----	549	*
571	Bolicker silt loam, 30 to 40 percent slopes-----	114	*
580	Benwy silt loam, 2 to 5 percent slopes-----	834	*
581	Benwy silt loam, 5 to 10 percent slopes-----	3,605	0.4
582	Benwy silt loam, 10 to 20 percent north slopes-----	2,418	0.2
583	Benwy silt loam, cemented substratum, 10 to 20 percent south slopes-----	2,587	0.3
584	Mikkalo-Bakeoven complex, 15 to 30 percent slopes-----	1,474	0.1
585	Mikkalo-Bakeoven complex, 2 to 15 percent slopes-----	11,939	1.2
586	Mikkalo silt loam, 2 to 5 percent slopes-----	26,746	2.6

See footnote at end of table.

Table 1.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
587	Mikkalo silt loam, 5 to 10 percent slopes-----	5,114	0.5
588	Mikkalo silt loam, 15 to 30 percent slopes-----	2,542	0.3
589	Mikkalo silt loam, 10 to 15 percent slopes-----	2,010	0.2
590	Mikkalo fine sandy loam, 0 to 2 percent slopes-----	240	*
591	Lickskillet-Mikkalo complex, 0 to 2 percent slopes-----	816	*
600	Meloza clay, 2 to 15 percent slopes-----	314	*
670	Wato silt loam, 5 to 10 percent slopes-----	553	*
671	Wato silt loam, 2 to 5 percent slopes-----	594	*
672	Wato silt loam, 10 to 15 percent slopes-----	34	*
681	Nansene silt loam, 5 to 10 percent slopes-----	80	*
682	Nansene silt loam, 10 to 15 percent slopes-----	65	*
700	Urban land-----	523	*
711	Pits, quarry-----	12	*
721	Rock outcrop-Rubble land-Haploxerolls complex, very steep-----	6,708	0.7
724C	Haploxerolls-Rubble land complex, steep-----	431	*
724D	Haploxerolls-Rubble land complex, very steep-----	239	*
725	Cauley silt loam, 5 to 10 percent slopes-----	335	*
726	Cauley silt loam, 10 to 15 percent slopes-----	105	*
727	Cauley silt loam, 15 to 30 percent slopes-----	86	*
729	Cauley silt loam, 30 to 65 percent slopes-----	106	*
730	Stacker-Horseflat complex, 2 to 15 percent slopes-----	1,661	0.2
731	Stacker-Horseflat complex, 15 to 30 percent slopes-----	4,155	0.4
732	Stacker-Horseflat complex, 30 to 65 percent slopes-----	6,409	0.6
737	Wind River fine sandy loam, 5 to 10 percent slopes-----	165	*
742	Gwin cobbly silt loam, 30 to 65 percent slopes-----	419	*
751	Lorena-Rockly complex, 30 to 65 percent slopes-----	770	*
752	Lorena-Rockly complex, 2 to 15 percent slopes-----	582	*
756	Walla Walla silt loam, 2 to 15 percent slopes-----	419	*
758	Walla Walla silt loam, 30 to 65 percent slopes-----	2,096	0.2
761	Balake very gravelly loam, 5 to 10 percent slopes-----	449	*
762	Balake very gravelly loam, 10 to 15 percent slopes-----	220	*
763	Balake very gravelly loam, 15 to 30 percent slopes-----	95	*
764	Balake very gravelly loam, 5 to 30 percent slopes-----	47	*
765	Balake very gravelly loam, 30 to 65 percent slopes-----	47	*
766	Gunn-Galiente complex, 5 to 30 percent slopes-----	380	*
767	Gunn-Galiente complex, 30 to 65 percent slopes-----	349	*
768	Gunn-Galiente complex, 15 to 30 percent slopes-----	196	*
769	Aquic Haploxerolls, protected, nearly level-----	62	*
775	Horseflat cobbly silt loam, 2 to 15 percent slopes-----	191	*
776	Horseflat cobbly silt loam, 15 to 30 percent slopes-----	290	*
777	Horseflat cobbly silt loam, 30 to 65 percent slopes-----	4,549	0.4
781	Gunn loam, 30 to 65 percent slopes-----	1,001	*
782	Gunn loam, 5 to 30 percent north slopes-----	1,793	0.2
783	Gunn loam, 30 to 65 percent north slopes-----	971	*
790	Fisherhill silt loam, 2 to 5 percent slopes-----	171	*
791	Fisherhill silt loam, 5 to 10 percent slopes-----	586	*
792	Fisherhill silt loam, 10 to 15 percent slopes-----	528	*
793	Goldendale silt loam, 2 to 15 percent slopes-----	47	*
796	Lorena silt loam, 2 to 15 percent slopes-----	316	*
798	Dalig loam, 5 to 30 percent slopes-----	1,185	0.1
799	Dalig loam, 30 to 65 percent slopes-----	484	*
890	Stacker silt loam, 2 to 5 percent slopes-----	27	*
891	Stacker silt loam, 5 to 10 percent slopes-----	197	*
893	Fisherhill silt loam, 2 to 15 percent slopes-----	319	*
894	Fisherhill silt loam, 15 to 30 percent slopes-----	1,404	0.1
895	Fisherhill silt loam, 30 to 65 percent slopes-----	294	*
896	Stacker silt loam, 2 to 15 percent slopes-----	547	*
897	Stacker silt loam, 15 to 30 percent slopes-----	924	*
898	Stacker silt loam, 30 to 65 percent slopes-----	109	*
899	Stacker silt loam, 10 to 15 percent slopes-----	43	*
930A	Rockly-Lorena complex, 2 to 15 percent north slopes-----	1,150	0.1

See footnote at end of table.

Table 1.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
930B	Rockly-Lorena complex, 15 to 30 percent north slopes-----	95	*
950	Lorena-Rockly complex, 15 to 30 percent north slopes-----	1,124	0.1
951	Lorena-Rockly complex, 30 to 65 percent north slopes-----	2,045	0.2
952	Lorena-Rockly complex, 2 to 15 percent north slopes-----	624	*
969	Goldendale silt loam, basalt substratum, 2 to 5 percent north slopes----	36	*
969A	Goldendale silt loam, basalt substratum, 5 to 10 percent north slopes----	356	*
969B	Goldendale silt loam, basalt substratum, 10 to 15 percent north slopes---	1,036	0.1
969C	Goldendale silt loam, basalt substratum, 15 to 30 percent north slopes---	618	*
970	Oreoke-Tronsen complex, 15 to 30 percent slopes-----	413	*
971	Oreoke-Tronsen complex, 30 to 60 percent slopes-----	105	*
987	Asotin silt loam, 5 to 10 percent slopes-----	104	*
988	Asotin silt loam, 15 to 30 percent slopes-----	335	*
989	Asotin silt loam, 10 to 15 percent slopes-----	98	*
990	Goldendale-Lorena-Rockly complex, 2 to 30 percent north slopes-----	663	*
991	Goldendale-Lorena-Rockly complex, 30 to 65 percent north slopes-----	1,059	0.1
993A	Goldendale silt loam, 5 to 10 percent north slopes-----	389	*
993B	Goldendale silt loam, 10 to 15 percent north slopes-----	856	*
993C	Goldendale silt loam, 15 to 30 percent north slopes-----	745	*
993D	Goldendale silt loam, 30 to 65 percent north slopes-----	276	*
994	Lorena silt loam, 2 to 5 percent north slopes-----	5	*
994A	Lorena silt loam, 5 to 10 percent north slopes-----	563	*
994B	Lorena silt loam, 10 to 15 percent north slopes-----	1,301	0.1
994C	Lorena silt loam, 15 to 30 percent north slopes-----	1,046	0.1
995	Hyprairie silt loam, dry, 2 to 30 percent slopes-----	296	*
996	Hyprairie silt loam, dry, 30 to 65 percent slopes-----	726	*
1000	Tekison silt loam, 30 to 60 percent slopes-----	1,332	0.1
1010	Colockum-Cheviot complex, 15 to 30 percent slopes-----	2,390	0.2
1011	Colockum-Cheviot complex, 30 to 60 percent slopes-----	2,385	0.2
1012	Goldendale-Tekison complex, 2 to 15 percent slopes-----	548	*
1013	Goldendale-Tekison complex, 15 to 30 percent slopes-----	528	*
1014	Tekison-Goldendale complex, 30 to 65 percent slopes-----	175	*
1015	Rockly-Tekison-Rock outcrop complex, 5 to 30 percent slopes-----	1,385	0.1
1016	Goldendale-Rockly complex, 30 to 65 percent slopes-----	319	*
1017	Tronsen-Goldendale-Horseflat complex, 15 to 30 percent slopes-----	512	*
1018	Tronsen-Goodnoe-Horseflat complex, 30 to 65 percent slopes-----	282	*
1030	Stacker-Swalecreek-Horseflat complex, 2 to 15 percent slopes-----	911	*
1031	Stacker-Swalecreek-Horseflat complex, 15 to 30 percent slopes-----	1,488	0.1
1032	Goodnoe-Swalecreek-Horseflat complex, 30 to 65 percent slopes-----	4,085	0.4
1042	Cheviot-Tronsen complex, 15 to 30 percent slopes-----	215	*
1075	Walla Walla-Goodnoe complex, 30 to 65 percent slopes-----	392	*
1093	Goldendale-Lorena complex, 15 to 30 percent slopes-----	305	*
1096	Oreoke-Goldendale-Rock outcrop complex, 25 to 50 percent slopes-----	1,014	0.1
1097	Tekison-Lorena-Rockly complex, 30 to 65 percent slopes-----	1,828	0.2
2961	Renslow silt loam, 0 to 5 percent slopes-----	912	*
2971	Renslow silt loam, 5 to 15 percent slopes-----	512	*
3061	Ritzville silt loam, basalt substratum, 2 to 5 percent slopes-----	2,557	0.3
3071	Ritzville silt loam, basalt substratum, 5 to 15 percent slopes-----	864	*
3081	Ritzville silt loam, basalt substratum, 15 to 30 percent slopes-----	793	*
D	Dam-----	53	*
W	Water-----	20,913	2.1
	Total-----	1,013,863	100.0

* Less than 0.1 percent.

Table 2.--Land Capability Classification

(Land capability is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time.)

Map symbol and soil name	Land capability	
	N	I
1B: Satus-----	4e	---
2C: Satus-----	7s	---
3C: Pird-----	7e	---
4B: Grandpon-----	4e	---
6B: Berson-----	4e	---
7B: Bocker-----	7s	---
Klicko-----	4e	---
7C: Sapkin-----	6e	---
8C: Berson-----	7e	---
9: Quincy-----	7e	4e
9B: Pird-----	6e	---
9C: Quincy-----	7e	7e
Rock outcrop-----	8s	---
10: Pits, gravel-----	8	---
10B: Andic Haplocryalfs-----	7e	---
11: Xerands-----	7e	---
11A: Xerands-----	7e	---
11B: Xerands-----	7e	---
11C: Xerands-----	7e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
12:		
Legall-----	4e	---
12A:		
Tekison-----	7e	---
Rock outcrop-----	8s	---
12B:		
Maydol-----	4e	---
12C:		
Legall-----	7e	---
Rock outcrop-----	8s	---
Rubble land-----	8s	---
12D:		
Lyville-----	6s	---
12E:		
Rock outcrop-----	8s	---
Rubble land-----	8s	---
Legall-----	7e	---
12F:		
Lyville-----	7e	---
Rock outcrop-----	8s	---
13B:		
Itat-----	4e	---
13C:		
Itat-----	7e	---
14A:		
Rockly-----	7s	---
14B:		
Rockly-----	7s	---
15:		
Rockly-----	7s	---
Rock outcrop-----	8s	---
16:		
Sauter-----	7e	---
16B:		
Suta-----	7s	---
16C:		
Sauter-----	7e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
16C:		
Rock outcrop-----	8s	---
Rubble land-----	8s	---
16E:		
Rock outcrop-----	8s	---
Rubble land-----	8s	---
Sauter-----	7e	---
17A:		
Presher-----	3s	---
17B:		
Presher-----	4e	---
17D:		
Quiden-----	4e	4e
18A:		
Kaiders-----	4e	---
18B:		
Kaiders-----	4e	---
18C:		
Kaiders-----	7e	---
19:		
Kiakus-----	4e	---
Munset-----	5w	---
Wahoo-----	6s	---
20:		
Nook-----	3w	3w
20A:		
Threecreeks-----	3w	3w
21:		
Rock outcrop-----	8s	---
Rubble land-----	8s	---
22:		
Fluventic Haploxerolls-----	3w	---
Riverwash-----	8	---
23:		
Gunn-----	2e	3e
23A:		
Gunn-----	4e	---
23B:		
Gunn-----	4e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
23C: Gunn-----	4s	4s
24: Rockly-----	7s	---
Itat-----	4e	---
25: Leidl-----	7e	---
Dillcourt-----	7e	---
Rock outcrop-----	8s	---
25A: Leidl-----	6s	---
25B: Leidl-----	7e	---
Oreoke-----	7e	---
25C: Leidl-----	7e	---
Dillcourt-----	7e	---
26: Mazdale-----	7s	---
26C: Mazdale-----	7s	---
Rock outcrop-----	8s	---
Rubble land-----	8s	---
26E: Rock outcrop-----	8s	---
Rubble land-----	8s	---
Mazdale-----	7s	---
27B: Yedlick-----	4e	---
28: Trelk-----	3e	---
30: Rockly-----	7s	---
Kiakus-----	3s	---
30A: Rockly-----	7s	---
Lorena-----	3e	3e

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
30B:		
Rockly-----	7s	---
Lorena-----	3e	3e
32A:		
Beezee-----	7e	---
32B:		
Beezee-----	7e	---
33:		
Riverwash-----	8	---
33A:		
Haploxerolls-----	6e	3e
Fluvaquents-----	4w	---
36:		
Jebe-----	7e	---
36C:		
Jebe-----	7e	---
Rock outcrop-----	8s	---
Rubble land-----	8s	---
39A:		
Hyprairie-----	2e	---
39B:		
Hyprairie-----	3e	---
39C:		
Hyprairie-----	3e	---
39D:		
Hyprairie-----	4e	---
41:		
Oreoke-----	7e	---
Legall-----	7e	---
42:		
Oreoke-----	7e	---
Beezee-----	7e	---
43:		
Oreoke-----	7e	---
Colockum-----	7e	---
49A:		
Kiakus-----	3s	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
49B: Kiakus-----	3s	---
49C: Kiakus-----	3e	---
49D: Kiakus-----	4e	---
49E: Kiakus-----	3e	---
Rockly-----	7s	---
55: Firoke-----	6e	---
55A: Kingtain-----	7e	---
57: Firoke-----	4e	---
59B: Bercumb-----	4e	---
59C: Bercumb-----	7e	---
59D: Bercumb-----	7e	---
61: Grayland-----	5w	---
63: Fanal-----	3e	3e
65: Leidl-----	7e	---
65B: Dystroxerepts-----	7e	---
66: Flotag-----	2s	2s
68: Fluvaquentic Endoaquolls-----	5w	---
69: Goldendale-----	2e	2e
69A: Goldendale-----	3e	4e
69B: Goldendale-----	3e	4e
69C: Goldendale-----	4e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
72: Aqualfs-----	5w	---
73A: Dalig-----	2e	---
73B: Dalig-----	3e	---
73C: Dalig-----	4e	---
74A: Tigit-----	3e	---
74B: Tigit-----	3e	---
74C: Tigit-----	4e	---
76: Underwood-----	2e	3e
76A: Underwood-----	3e	4e
76B: Underwood-----	4e	---
76C: Underwood-----	7e	---
77: McGowan-----	3e	4e
77A: McGowan-----	2e	3e
80: Troutlake-----	3e	3e
81: Sugarbowl-----	4e	---
82B: Kingtain-----	4e	---
82D: Kingtain-----	7e	---
82E: Kingtain-----	7e	---
Rock outcrop-----	8s	---
83: Volash-----	3e	---
84: Trouter-----	4s	4s

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
84A:		
Trouter-----	4e	4e
Rock outcrop-----	8s	---
86A:		
Chemawa-----	2e	---
86B:		
Chemawa-----	3e	---
86C:		
Chemawa-----	4e	---
86D:		
Chemawa-----	6e	---
87A:		
Eagreek-----	6e	---
88A:		
Timberhead-----	4e	---
88B:		
Timberhead-----	7e	---
89:		
McElroy-----	7e	---
89B:		
McElroy-----	7e	---
Rock outcrop-----	8s	---
90:		
Hood-----	2e	2e
90A:		
Hood-----	3e	4e
90B:		
Hood-----	4e	6e
90C:		
Hood-----	7e	---
92:		
Husum-----	3s	---
92A:		
Husum-----	3e	---
92B:		
Husum-----	3s	---
93:		
Goldendale-----	2e	2e
93A:		
Goldendale-----	3e	4e

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
93B: Goldendale-----	3e	4e
93C: Goldendale-----	4e	---
93D: Goldendale-----	7e	---
94: Lorena-----	3e	3e
94A: Lorena-----	3e	3e
94B: Lorena-----	3e	4e
94C: Lorena-----	4e	---
94E: Lorena-----	4e	---
Rockly-----	7s	---
95: Konert-----	4w	---
95A: Konert-----	5w	---
96: Blockhouse-----	2w	2w
97: Munset-----	5w	---
97A: Setnum-----	3w	3w
97B: Blockhouse-----	4w	4w
Munset-----	5w	---
99: Dallesport-----	4e	3e
100: Dallesport-----	4e	3e
101: Dallesport-----	4e	4e
102: Dallesport-----	4e	---
103: Dallesport-----	4e	4e
Rock outcrop-----	8s	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
104:		
Dallesport-----	4e	---
Rock outcrop-----	8s	---
105:		
Ewall-----	4e	3e
106:		
Ewall-----	4e	4e
107:		
Ewall-----	4e	6e
108:		
Ewall-----	4e	4e
Rock outcrop-----	8s	---
109:		
Ewall-----	4e	6e
Rock outcrop-----	8s	---
113B:		
Tekison-----	7e	---
113C:		
Tekison-----	4e	---
115:		
Aquolls-----	5w	---
116:		
Aquolls-----	5w	---
Rock outcrop-----	8s	---
120:		
Rock outcrop-----	8s	---
Haploxerolls-----	4e	---
121:		
Rock outcrop-----	8s	---
Haploxerolls-----	7s	---
122:		
Rock outcrop-----	8s	---
Haploxerolls-----	7s	---
123A:		
Galiente-----	3s	---
125:		
Scooteney-----	6e	2e
127:		
Scooteney-----	6e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
130: Oxy-----	4w	---
131: Onyx-----	3w	3w
132: Esquatzel-----	3e	2e
136: Bickleton-----	2e	---
137: Bickleton-----	3e	---
140: Broadax-----	2e	2e
141: Broadax-----	3e	4e
150: Morrow-----	3e	---
151: Morrow-----	3e	---
155: Morrow-----	3e	---
Bakeoven-----	7s	---
159B: Panak-----	4e	---
159C: Panak-----	7e	---
159D: Panak-----	7e	---
161: Van Nostern-----	3e	---
181: Umapine-----	6w	---
187: Cleman-----	3e	2e
190: Weirman-----	6w	4w
193: Swalecreek-----	2c	2c
194: Swalecreek-----	2e	2e

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
195:		
Swalecreek-----	3e	4e
Niva-----	6s	6s
196:		
Mondovi-----	3w	---
200:		
Malaga-----	3e	4e
211:		
Hezel-----	7e	2e
212:		
Hezel-----	7e	4e
213:		
Hezel-----	7e	4e
225:		
Kiona-----	6e	---
226:		
Kiona-----	7s	---
Rock outcrop-----	8s	---
227:		
Cheviot-----	7s	---
228:		
Borfin-----	7e	---
229:		
Cheviot-----	7e	---
Wipple-----	6e	---
Rock outcrop-----	8s	---
230:		
Cheviot-----	7e	---
Ralls-----	7e	---
Rock outcrop-----	8s	---
240:		
Niva-----	6s	6s
241:		
Niva-----	4e	6e
242:		
Niva-----	6e	6e
250:		
Van Nostern-----	3e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
251: Van Nostern-----	3e	---
255: Van Nostern-----	3e	---
Bakeoven-----	7s	---
266: Van Nostern-----	4e	---
Bakeoven-----	7s	---
274: Prosser-----	3e	2e
275: Prosser-----	3e	4e
277: Prosser-----	3e	4e
Bakeoven-----	7s	---
280: Quincy-----	7e	4e
281: Quincy-----	7e	4e
285: Quinton-----	7e	4e
290: Koehler-----	7e	4e
296: Swalecreek-----	3e	4e
297: Swalecreek-----	4e	---
298: Swalecreek-----	4e	---
Rockly-----	7s	---
299: Swalecreek-----	7e	---
Rockly-----	7s	---
304: Ritzville-----	3e	4e
305: Ritzville-----	4e	6e
306: Ritzville-----	7e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
308: Ralls-----	7e	---
317: Reilloc-----	7s	---
Sienna-----	4e	---
318: Sienna-----	4e	---
329: Badge-----	7s	---
330: Badge-----	7s	---
343: Shano-----	3e	4e
346: Shano-----	3e	2e
347: Shano-----	3e	4e
348: Shano-----	4e	6e
350: Willis-----	3e	3e
351: Willis-----	3e	3e
352: Willis-----	3e	4e
353: Willis-----	4e	6e
360: Selah-----	3e	2e
361: Selah-----	3e	3e
362: Selah-----	3e	4e
365: Selah-----	3e	3e
Bakeoven-----	7s	---
374: Thiessen-----	7s	---
375: Licksillet-----	7s	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
376: Lickskillet-----	7e	---
377: Lickskillet-----	7s	---
378: Starbuck-----	6s	---
Rock outcrop-----	8s	---
379: Rock outcrop-----	8s	---
Rubble land-----	8s	---
Cheviot-----	7e	---
380: Cheviot-----	7e	---
Lickskillet-----	7s	---
Rock outcrop-----	8s	---
381: Ralls-----	7e	---
Cheviot-----	7e	---
Lickskillet-----	7s	---
390: Renslow-----	3e	3e
Ralls-----	4e	4e
Wipple-----	3e	4e
391: Broadax-----	3e	4e
Colockum-----	3e	4e
Tronsen-----	4e	---
394: Cheviot-----	7s	---
Ralls-----	4e	4e
Wipple-----	3e	4e
395: Cheviot-----	7s	---
Ralls-----	4e	---
Wipple-----	4e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
396:		
Renslow-----	4e	4e
Ralls-----	4e	6e
Wipple-----	4e	6e
420:		
Endicott-----	3e	3e
Moxee-----	6e	4e
421:		
Endicott-----	3e	4e
Moxee-----	6e	6e
422:		
Endicott-----	3e	4e
Moxee-----	6e	6e
423:		
Endicott-----	3e	3e
424:		
Endicott-----	3e	4e
425:		
Endicott-----	3e	4e
433:		
Warden-----	6e	3e
435:		
Warden-----	6e	2e
436:		
Warden-----	6c	1
437:		
Warden-----	6e	4e
438:		
Warden-----	6e	6e
440:		
Kahlotus-----	3e	2e
441:		
Kahlotus-----	3e	3e
442:		
Kahlotus-----	3e	4e
443:		
Kahlotus-----	4e	6e
444:		
Kahlotus-----	7e	---
Kennewick-----	7e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
445: Kahlotus-----	3e	3e
Rock outcrop-----	8s	---
450: Kennewick-----	6e	2e
451: Kennewick-----	6e	3e
453: Kennewick-----	6e	6e
485: Bakeoven-----	7s	---
487: Bakeoven-----	7s	---
488: Camaspatch-----	7s	---
489: Rock Creek-----	7s	---
495: Konner-----	3w	---
533: Sagehill-----	3e	4e
534: Sagehill-----	3c	1
535: Sagehill-----	4e	---
Kiona-----	6e	---
536: Sagehill-----	3e	2e
537: Sagehill-----	3e	4e
538: Sagehill-----	4e	---
540: Walla Walla-----	2e	2e
541: Walla Walla-----	3e	3e
542: Walla Walla-----	3e	4e
543: Walla Walla-----	4e	6e

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
550: Walla Walla-----	2e	2e
551: Walla Walla-----	3e	3e
552: Walla Walla-----	3e	4e
555: Walla Walla-----	2e	2e
556: Walla Walla-----	3e	3e
557: Walla Walla-----	3e	4e
558: Walla Walla-----	4e	6e
560: Olex-----	4e	---
561: Olex-----	6e	---
562: Olex-----	3e	---
570: Bollicker-----	4e	---
571: Bollicker-----	6e	---
580: Benwy-----	3e	2e
581: Benwy-----	3e	3e
582: Benwy-----	4e	---
583: Benwy-----	4e	---
584: Mikkalo-----	4e	---
Bakeoven-----	7s	---
585: Mikkalo-----	3e	3e
Bakeoven-----	7s	---
586: Mikkalo-----	3e	3e

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
587: Mikkalo-----	3e	3e
588: Mikkalo-----	4e	---
589: Mikkalo-----	3e	4e
590: Mikkalo-----	3e	3e
591: Licksillet-----	7s	---
Mikkalo-----	3e	3e
600: Meloza-----	3e	---
670: Wato-----	3e	---
671: Wato-----	2e	---
672: Wato-----	3e	---
681: Nansene-----	3e	---
682: Nansene-----	3e	---
700: Urban land-----	8	---
711: Pits, quarry-----	8	---
721: Rock outcrop-----	8s	---
Rubble land-----	8s	---
Haploxerolls-----	7s	---
724C: Haploxerolls-----	7s	---
Rubble land-----	8s	---
724D: Haploxerolls-----	7s	---
Rubble land-----	8s	---
725: Cauley-----	3e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
726: Cauley-----	3e	---
727: Cauley-----	4e	---
729: Cauley-----	7e	---
730: Stacker-----	3e	---
Horseflat-----	7s	---
731: Stacker-----	4e	---
Horseflat-----	7s	---
732: Stacker-----	7e	---
Horseflat-----	7s	---
737: Wind River-----	3e	4e
742: Gwin-----	7e	---
751: Lorena-----	7e	---
Rockly-----	7s	---
752: Lorena-----	3e	3e
Rockly-----	7s	---
756: Walla Walla-----	3e	3e
758: Walla Walla-----	7e	---
761: Balake-----	4e	---
762: Balake-----	4e	---
763: Balake-----	4e	---
764: Balake-----	4e	---
765: Balake-----	7e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
766:		
Gunn-----	4e	---
Galiente-----	4e	---
767:		
Gunn-----	7e	---
Galiente-----	7e	---
768:		
Gunn-----	4e	---
Galiente-----	4e	---
769:		
Aquic Haploxerolls-----	3w	---
775:		
Horseflat-----	7s	---
776:		
Horseflat-----	7s	---
777:		
Horseflat-----	7s	---
781:		
Gunn-----	7e	---
782:		
Gunn-----	4e	---
783:		
Gunn-----	7e	---
790:		
Fisherhill-----	2e	---
791:		
Fisherhill-----	3e	---
792:		
Fisherhill-----	3e	---
793:		
Goldendale-----	3e	4e
796:		
Lorena-----	3e	3e
798:		
Dalig-----	4e	---
799:		
Dalig-----	7e	---
890:		
Stacker-----	3e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
891: Stacker-----	3e	---
893: Fisherhill-----	3e	---
894: Fisherhill-----	4e	---
895: Fisherhill-----	7e	---
896: Stacker-----	3e	---
897: Stacker-----	4e	---
898: Stacker-----	7e	---
899: Stacker-----	3e	---
930A: Rockly-----	7s	---
Lorena-----	3e	3e
930B: Rockly-----	7s	---
Lorena-----	4e	---
950: Lorena-----	4e	---
Rockly-----	7s	---
951: Lorena-----	7e	---
Rockly-----	7s	---
952: Lorena-----	3e	3e
Rockly-----	7s	---
969: Goldendale-----	2e	2e
969A: Goldendale-----	3e	4e
969B: Goldendale-----	3e	4e
969C: Goldendale-----	4e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
970:		
Oreoke-----	4e	---
Tronsen-----	4e	---
971:		
Oreoke-----	7e	---
Tronsen-----	7s	---
987:		
Asotin-----	3e	---
988:		
Asotin-----	4e	---
989:		
Asotin-----	3e	---
990:		
Goldendale-----	4e	---
Lorena-----	4e	---
Rockly-----	7s	---
991:		
Goldendale-----	7e	---
Lorena-----	7e	---
Rockly-----	7s	---
993A:		
Goldendale-----	3e	4e
993B:		
Goldendale-----	3e	4e
993C:		
Goldendale-----	4e	---
993D:		
Goldendale-----	7e	---
994:		
Lorena-----	3e	3e
994A:		
Lorena-----	3e	3e
994B:		
Lorena-----	3e	4e
994C:		
Lorena-----	4e	---
995:		
Hyprairie-----	4e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
996:		
Hyprairie-----	7e	---
1000:		
Tekison-----	7e	---
1010:		
Colockum-----	4e	6e
Cheviot-----	7s	---
1011:		
Colockum-----	7e	---
Cheviot-----	7e	---
1012:		
Goldendale-----	3e	---
Tekison-----	4e	---
1013:		
Goldendale-----	4e	---
Tekison-----	4e	---
1014:		
Tekison-----	7e	---
Goldendale-----	7e	---
1015:		
Rockly-----	7s	---
Tekison-----	4e	---
Rock outcrop-----	8s	---
1016:		
Goldendale-----	7e	---
Rockly-----	7s	---
1017:		
Tronsen-----	4e	---
Goldendale-----	4e	---
Horseflat-----	7s	---
1018:		
Tronsen-----	7s	---
Goodnoe-----	7e	---
Horseflat-----	7s	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
1030:		
Stacker-----	3e	---
Swalecreek-----	3e	4e
Horseflat-----	7s	---
1031:		
Stacker-----	4e	---
Swalecreek-----	4e	---
Horseflat-----	7s	---
1032:		
Goodnoe-----	7e	---
Swalecreek-----	7e	---
Horseflat-----	7s	---
1042:		
Cheviot-----	7s	---
Tronsen-----	4e	---
1075:		
Walla Walla-----	7e	---
Goodnoe-----	7e	---
1093:		
Goldendale-----	4e	---
Lorena-----	4e	---
1096:		
Oreoke-----	7e	---
Goldendale-----	7e	---
Rock outcrop-----	8s	---
1097:		
Tekison-----	7e	---
Lorena-----	7e	---
Rockly-----	7s	---
2961:		
Renslow-----	3c	---
2971:		
Renslow-----	3e	---
3061:		
Ritzville-----	3e	---
3071:		
Ritzville-----	3e	---

Table 2.--Land Capability Classification--Continued

Map symbol and soil name	Land capability	
	N	I
3081: Ritzville-----	4e	---
D: Dam-----	8	---
W: Water-----	8	---

Table 3.--Prime and Statewide Important Farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Map unit name	Farmland classification
1B	Satus stony ashy loam, 5 to 30 percent slopes-----	Farmland of statewide importance
4B	Grandpon ashy loam, 8 to 30 percent slopes-----	Farmland of statewide importance
6B	Berson gravelly ashy loam, 5 to 30 percent slopes-----	Farmland of statewide importance
7B	Bocker-Klicko complex, 2 to 30 percent slopes-----	Farmland of statewide importance
9	Quincy fine sand, 2 to 25 percent slopes, eroded-----	Farmland of statewide importance
12B	Maydol very stony loam, 5 to 30 percent slopes-----	Farmland of statewide importance
12D	Lyville bouldery loam, 2 to 20 percent slopes-----	Farmland of statewide importance
17B	Presher stony loam, 8 to 30 percent slopes-----	Farmland of statewide importance
17D	Quiden stony loam, 2 to 20 percent slopes-----	Farmland of statewide importance
18A	Kaiders stony loam, 5 to 30 percent slopes-----	Farmland of statewide importance
19	Kiakus-Munset-Wahoo complex, 0 to 30 percent slopes-----	Farmland of statewide importance
20	Nook silt loam, 0 to 5 percent slopes-----	All areas are prime farmland
20A	Threecreeks silt loam, 0 to 3 percent slopes-----	All areas are prime farmland
23	Gunn loam, 2 to 8 percent slopes-----	All areas are prime farmland
23A	Gunn stony loam, 8 to 30 percent slopes-----	Farmland of statewide importance
23B	Gunn loam, 8 to 30 percent slopes-----	Farmland of statewide importance
23C	Gunn stony loam, 0 to 8 percent slopes-----	Farmland of statewide importance
27B	Yedlick stony ashy sandy loam, 8 to 30 percent slopes-----	Farmland of statewide importance
28	Trelk ashy loam, 2 to 10 percent slopes-----	Farmland of statewide importance
30A	Rockly-Lorena complex, 2 to 15 percent slopes-----	Farmland of statewide importance
39A	Hyprairie silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
39B	Hyprairie silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
39C	Hyprairie silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
39D	Hyprairie silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
49A	Kiakus silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
49B	Kiakus silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
49C	Kiakus silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
49D	Kiakus silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
49E	Kiakus-Rockly complex, 2 to 15 percent slopes-----	Farmland of statewide importance
55	Firoke ashy fine sandy loam, 10 to 40 percent slopes, stony---	Farmland of statewide importance
57	Firoke ashy fine sandy loam, 5 to 30 percent slopes, stony---	Farmland of statewide importance
63	Fanal ashy sandy loam, 2 to 8 percent slopes-----	All areas are prime farmland
66	Flotag gravelly ashy sandy loam, 0 to 2 percent slopes-----	All areas are prime farmland
69	Goldendale silt loam, basalt substratum, 2 to 5 percent slopes-----	All areas are prime farmland
69A	Goldendale silt loam, basalt substratum, 5 to 10 percent slopes-----	Farmland of statewide importance
69B	Goldendale silt loam, basalt substratum, 10 to 15 percent slopes-----	Farmland of statewide importance
69C	Goldendale silt loam, basalt substratum, 15 to 30 percent slopes-----	Farmland of statewide importance
73A	Dalig loam, 2 to 8 percent slopes-----	All areas are prime farmland
73B	Dalig loam, 8 to 15 percent slopes-----	Farmland of statewide importance
73C	Dalig loam, 15 to 30 percent slopes-----	Farmland of statewide importance
74A	Tigit ashy loam, 2 to 8 percent slopes-----	All areas are prime farmland
74B	Tigit ashy loam, 8 to 15 percent slopes-----	Farmland of statewide importance
74C	Tigit ashy loam, 15 to 30 percent slopes-----	Farmland of statewide importance
76	Underwood ashy loam, 2 to 8 percent slopes-----	All areas are prime farmland
76A	Underwood ashy loam, 8 to 15 percent slopes-----	Farmland of statewide importance
76B	Underwood ashy loam, 15 to 30 percent slopes-----	Farmland of statewide importance
77	McGowan ashy loam, 8 to 15 percent slopes-----	Farmland of statewide importance
77A	McGowan ashy loam, 2 to 8 percent slopes-----	All areas are prime farmland
80	Troutlake ashy loam, 1 to 5 percent slopes-----	All areas are prime farmland
81	Sugarbowl ashy loam, 5 to 30 percent slopes-----	Farmland of statewide importance
82B	Kingtain gravelly ashy loam, 8 to 30 percent slopes-----	Farmland of statewide importance
83	Volash ashy loam, 2 to 15 percent slopes-----	Farmland of statewide importance
84	Trouter stony ashy loam, 2 to 8 percent slopes-----	Farmland of statewide importance
84A	Trouter-Rock outcrop complex, 2 to 15 percent slopes-----	Farmland of statewide importance

Table 3.--Prime and Statewide Important Farmland--Continued

Map symbol	Map unit name	Farmland classification
86A	Chemawa ashy loam, 2 to 8 percent slopes-----	All areas are prime farmland
86B	Chemawa ashy loam, 8 to 15 percent slopes-----	Farmland of statewide importance
86C	Chemawa ashy loam, 15 to 30 percent slopes-----	Farmland of statewide importance
86D	Chemawa gravelly ashy loam, 30 to 45 percent slopes-----	Farmland of statewide importance
87A	Eagreek paragravelly loam, 15 to 50 percent slopes-----	Farmland of statewide importance
88A	Timberhead gravelly ashy loam, 5 to 30 percent slopes-----	Farmland of statewide importance
90	Hood loam, 3 to 8 percent slopes-----	All areas are prime farmland
90A	Hood loam, 8 to 15 percent slopes-----	Farmland of statewide importance
90B	Hood loam, 15 to 30 percent slopes-----	Farmland of statewide importance
92	Husum gravelly ashy loam, 0 to 5 percent slopes-----	All areas are prime farmland
92A	Husum gravelly ashy loam, 5 to 15 percent slopes-----	All areas are prime farmland
92B	Husum gravelly ashy loam, nonflooded, 0 to 5 percent slopes---	All areas are prime farmland
93	Goldendale silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
93A	Goldendale silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
93B	Goldendale silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
93C	Goldendale silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
94	Lorena silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
94A	Lorena silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
94B	Lorena silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
94C	Lorena silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
94E	Lorena-Rockly complex, 15 to 30 percent slopes-----	Farmland of statewide importance
95	Konert silt loam, drained, 0 to 2 percent slopes-----	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
96	Blockhouse silt loam, 0 to 5 percent slopes-----	All areas are prime farmland
97A	Setnum silt loam, 0 to 3 percent slopes-----	Prime farmland if drained
97B	Blockhouse-Munset complex, 5 to 10 percent slopes-----	Farmland of statewide importance
99	Dallesport fine sandy loam, 0 to 8 percent slopes-----	Prime farmland if irrigated
103	Dallesport-Rock outcrop complex, 0 to 15 percent slopes-----	Farmland of statewide importance
105	Ewall loamy sand, 0 to 8 percent slopes-----	Prime farmland if irrigated
106	Ewall loamy sand, 8 to 15 percent slopes-----	Farmland of statewide importance
108	Ewall-Rock outcrop complex, 0 to 15 percent slopes-----	Farmland of statewide importance
109	Ewall-Rock outcrop complex, 15 to 30 percent slopes-----	Farmland of statewide importance
113C	Tekison stony loam, 30 to 45 percent slopes-----	Farmland of statewide importance
125	Scooteney silt loam, 2 to 5 percent slopes-----	Farmland of statewide importance
131	Onyx silt loam, 0 to 2 percent slopes-----	All areas are prime farmland
132	Esquatzel silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
136	Bickleton silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
137	Bickleton silt loam, 5 to 15 percent slopes-----	Farmland of statewide importance
140	Broadax silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
141	Broadax silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
150	Morrow silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
151	Morrow silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
155	Morrow-Bakeoven complex, 2 to 15 percent slopes-----	Farmland of statewide importance
159B	Panak ashy loam, 5 to 30 percent slopes-----	Farmland of statewide importance
161	Van Nostern silt loam, 5 to 10 percent north slopes-----	Farmland of statewide importance
187	Cleman very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
193	Swalecreek silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
194	Swalecreek silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
195	Swalecreek-Niva complex, 5 to 10 percent slopes-----	Farmland of statewide importance
196	Mondovi silt loam, 0 to 2 percent slopes-----	All areas are prime farmland
200	Malaga gravelly fine sandy loam, 0 to 15 percent slopes-----	Prime farmland if irrigated
211	Hezel loamy fine sand, 0 to 2 percent slopes-----	Prime farmland if irrigated
212	Hezel loamy fine sand, 2 to 15 percent slopes-----	Farmland of statewide importance
225	Kiona stony very fine sandy loam, 5 to 30 percent slopes-----	Farmland of statewide importance
250	Van Nostern silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
251	Van Nostern silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
255	Van Nostern-Bakeoven complex, 2 to 15 percent slopes-----	Farmland of statewide importance
266	Van Nostern-Bakeoven complex, 15 to 30 percent slopes-----	Farmland of statewide importance
274	Prosser silt loam, 2 to 5 percent slopes-----	Farmland of statewide importance
275	Prosser silt loam, 5 to 15 percent slopes-----	Farmland of statewide importance
277	Prosser-Bakeoven complex, 2 to 15 percent slopes-----	Farmland of statewide importance

Table 3.--Prime and Statewide Important Farmland--Continued

Map symbol	Map unit name	Farmland classification
280	Quincy loamy sand, 0 to 2 percent slopes-----	Prime farmland if irrigated
296	Swalecreek silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
297	Swalecreek silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
298	Swalecreek-Rockly complex, 15 to 30 percent slopes-----	Farmland of statewide importance
304	Ritzville silt loam, 5 to 15 percent slopes-----	Farmland of statewide importance
305	Ritzville silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
343	Shano silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
346	Shano silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
347	Shano silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
348	Shano silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
350	Willis silt loam, 2 to 5 percent slopes-----	Farmland of statewide importance
351	Willis silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
352	Willis silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
353	Willis silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
360	Selah silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
361	Selah silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
362	Selah silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
365	Selah-Bakeoven complex, 2 to 15 percent slopes-----	Farmland of statewide importance
390	Renslow-Ralls-Wipple complex, 2 to 15 percent slopes-----	Farmland of statewide importance
391	Broadax-Colockum-Tronsen complex, 5 to 15 percent slopes-----	Farmland of statewide importance
394	Cheviot-Ralls-Wipple complex, 2 to 15 percent slopes-----	Farmland of statewide importance
396	Renslow-Ralls-Wipple complex, 15 to 30 percent north slopes---	Farmland of statewide importance
420	Endicott-Moxee complex, 2 to 5 percent slopes-----	Prime farmland if irrigated
421	Endicott-Moxee complex, 5 to 10 percent slopes-----	Farmland of statewide importance
422	Endicott-Moxee complex, 10 to 15 percent slopes-----	Farmland of statewide importance
423	Endicott silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
424	Endicott silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
425	Endicott silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
433	Warden silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
435	Warden silt loam, 2 to 5 percent slopes-----	Farmland of statewide importance
436	Warden silt loam, 0 to 2 percent slopes-----	Farmland of statewide importance
437	Warden silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
440	Kahlotus silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
441	Kahlotus silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
442	Kahlotus silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
443	Kahlotus silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
445	Kahlotus-Rock outcrop complex, 2 to 15 percent slopes-----	Farmland of statewide importance
450	Kennewick silt loam, 2 to 5 percent slopes-----	Farmland of statewide importance
451	Kennewick silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
533	Sagehill fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
534	Sagehill fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
535	Sagehill-Kiona complex, 2 to 30 percent slopes-----	Farmland of statewide importance
536	Sagehill fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
537	Sagehill fine sandy loam, 10 to 15 percent slopes-----	Farmland of statewide importance
538	Sagehill fine sandy loam, 15 to 30 percent slopes-----	Farmland of statewide importance
540	Walla Walla silt loam, 0 to 5 percent slopes-----	All areas are prime farmland
541	Walla Walla silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
542	Walla Walla silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
543	Walla Walla silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
550	Walla Walla silt loam, cemented substratum, 0 to 5 percent slopes-----	All areas are prime farmland
551	Walla Walla silt loam, cemented substratum, 5 to 10 percent slopes-----	Farmland of statewide importance
552	Walla Walla silt loam, cemented substratum, 10 to 15 percent slopes-----	Farmland of statewide importance
555	Walla Walla very fine sandy loam, 0 to 5 percent slopes-----	All areas are prime farmland
556	Walla Walla very fine sandy loam, 5 to 10 percent slope-----	Farmland of statewide importance
557	Walla Walla very fine sandy loam, 10 to 15 percent slopes-----	Farmland of statewide importance
558	Walla Walla very fine sandy loam, 15 to 30 percent slopes-----	Farmland of statewide importance
560	Olex silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
562	Olex silt loam, 2 to 15 percent slopes-----	Farmland of statewide importance
570	Bolicker silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
580	Benwy silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated

Table 3.--Prime and Statewide Important Farmland--Continued

Map symbol	Map unit name	Farmland classification
581	Benwy silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
582	Benwy silt loam, 10 to 20 percent north slopes-----	Farmland of statewide importance
583	Benwy silt loam, cemented substratum, 10 to 20 percent south slopes-----	Farmland of statewide importance
584	Mikkalo-Bakeoven complex, 15 to 30 percent slopes-----	Farmland of statewide importance
585	Mikkalo-Bakeoven complex, 2 to 15 percent slopes-----	Farmland of statewide importance
586	Mikkalo silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
587	Mikkalo silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
588	Mikkalo silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
589	Mikkalo silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
590	Mikkalo fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
591	Licksillet-Mikkalo complex, 0 to 2 percent slopes-----	Prime farmland if irrigated
600	Meloza clay, 2 to 15 percent slopes-----	Farmland of statewide importance
670	Wato silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
671	Wato silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
672	Wato silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
681	Nansene silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
682	Nansene silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
725	Cauley silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
726	Cauley silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
727	Cauley silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
730	Stacker-Horseflat complex, 2 to 15 percent slopes-----	Farmland of statewide importance
731	Stacker-Horseflat complex, 15 to 30 percent slopes-----	Farmland of statewide importance
737	Wind River fine sandy loam, 5 to 10 percent slopes-----	Prime farmland if irrigated
752	Lorena-Rockly complex, 2 to 15 percent slopes-----	Farmland of statewide importance
756	Walla Walla silt loam, 2 to 15 percent slopes-----	Farmland of statewide importance
763	Balake very gravelly loam, 15 to 30 percent slopes-----	Farmland of statewide importance
766	Gunn-Galiente complex, 5 to 30 percent slopes-----	Farmland of statewide importance
768	Gunn-Galiente complex, 15 to 30 percent slopes-----	Farmland of statewide importance
769	Aquic Haploxerolls, protected, nearly level-----	Prime farmland if protected from flooding or not frequently flooded during the growing season
782	Gunn loam, 5 to 30 percent north slopes-----	Farmland of statewide importance
790	Fisherhill silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
791	Fisherhill silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
792	Fisherhill silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
793	Goldendale silt loam, 2 to 15 percent slopes-----	Farmland of statewide importance
796	Lorena silt loam, 2 to 15 percent slopes-----	Farmland of statewide importance
798	Dalig loam, 5 to 30 percent slopes-----	Farmland of statewide importance
890	Stacker silt loam, 2 to 5 percent slopes-----	All areas are prime farmland
891	Stacker silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
893	Fisherhill silt loam, 2 to 15 percent slopes-----	Farmland of statewide importance
894	Fisherhill silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
896	Stacker silt loam, 2 to 15 percent slopes-----	Farmland of statewide importance
897	Stacker silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance
899	Stacker silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
930A	Rockly-Lorena complex, 2 to 15 percent north slopes-----	Farmland of statewide importance
950	Lorena-Rockly complex, 15 to 30 percent north slopes-----	Farmland of statewide importance
952	Lorena-Rockly complex, 2 to 15 percent north slopes-----	Farmland of statewide importance
969	Goldendale silt loam, basalt substratum, 2 to 5 percent north slopes-----	All areas are prime farmland
969A	Goldendale silt loam, basalt substratum, 5 to 10 percent north slopes-----	Farmland of statewide importance
969B	Goldendale silt loam, basalt substratum, 10 to 15 percent north slopes-----	Farmland of statewide importance
969C	Goldendale silt loam, basalt substratum, 15 to 30 percent north slopes-----	Farmland of statewide importance
970	Oreoke-Tronsen complex, 15 to 30 percent slopes-----	Farmland of statewide importance
987	Asotin silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
988	Asotin silt loam, 15 to 30 percent slopes-----	Farmland of statewide importance

Table 3.--Prime and Statewide Important Farmland--Continued

Map symbol	Map unit name	Farmland classification
989	Asotin silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
990	Goldendale-Lorena-Rockly complex, 2 to 30 percent north slopes-----	Farmland of statewide importance
993A	Goldendale silt loam, 5 to 10 percent north slopes-----	Farmland of statewide importance
993B	Goldendale silt loam, 10 to 15 percent north slopes-----	Farmland of statewide importance
993C	Goldendale silt loam, 15 to 30 percent north slopes-----	Farmland of statewide importance
993D	Goldendale silt loam, 30 to 65 percent north slopes-----	Farmland of statewide importance
994	Lorena silt loam, 2 to 5 percent north slopes-----	All areas are prime farmland
994A	Lorena silt loam, 5 to 10 percent north slopes-----	Farmland of statewide importance
994B	Lorena silt loam, 10 to 15 percent north slopes-----	Farmland of statewide importance
994C	Lorena silt loam, 15 to 30 percent north slopes-----	Farmland of statewide importance
995	Hyprairie silt loam, dry, 2 to 30 percent slopes-----	Farmland of statewide importance
1010	Colockum-Cheviot complex, 15 to 30 percent slopes-----	Farmland of statewide importance
1012	Goldendale-Tekison complex, 2 to 15 percent slopes-----	Farmland of statewide importance
1013	Goldendale-Tekison complex, 15 to 30 percent slopes-----	Farmland of statewide importance
1017	Tronsen-Goldendale-Horseflat complex, 15 to 30 percent slopes	Farmland of statewide importance
1030	Stacker-Swalecreek-Horseflat complex, 2 to 15 percent slopes--	Farmland of statewide importance
1031	Stacker-Swalecreek-Horseflat complex, 15 to 30 percent slopes	Farmland of statewide importance
1093	Goldendale-Lorena complex, 15 to 30 percent slopes-----	Farmland of statewide importance
2961	Renslow silt loam, 0 to 5 percent slopes-----	Prime farmland if irrigated
2971	Renslow silt loam, 5 to 15 percent slopes-----	Farmland of statewide importance
3061	Ritzville silt loam, basalt substratum, 2 to 5 percent slopes	Prime farmland if irrigated
3071	Ritzville silt loam, basalt substratum, 5 to 15 percent slopes-----	Farmland of statewide importance
3081	Ritzville silt loam, basalt substratum, 15 to 30 percent slopes-----	Farmland of statewide importance

Table 4.--Hydric Soils

(Only the map unit components that are rated as hydric are listed. Definition of hydric soil is given at the end of the table.)

Map symbol and map unit name	Component	Percent- age of map unit	Landform	Hy- dra- gic
6B: Berson gravelly ashy loam, 5 to 30 percent slopes	Munset	5	Depressions	Yes
13B: Itat cobbly loam, 5 to 30 percent slopes	Munset	10	Depressions	Yes
18A: Kaiders stony loam, 5 to 30 percent slopes	Munset	5	Depressions	Yes
18B: Kaiders cobbly loam, 8 to 30 percent slopes	Munset	10	Depressions	Yes
18C: Kaiders stony loam, 30 to 45 percent slopes	Munset	10	Depressions	Yes
19: Kiakus-Munset-Wahoo complex, 0 to 30 percent slopes	Munset	30	Depressions of dissected plateaus	Yes
20: Nook silt loam, 0 to 5 percent slopes	Munset	5	Depressions	Yes
20A: Threecreeks silt loam, 0 to 3 percent slopes	Munset	5	Depressions	Yes
22: Fluventic Haploxerolls-Riverwash complex, nearly level	Riverwash	35	Drainageways of flood plains	Yes
	Munset	5	Depressions	Yes

See footnotes at end of table.

Table 4.--Hydric Soils--Continued

Map symbol and map unit name	Component	Percent- age of map unit	Landform	Hy- dra
33: Riverwash	Riverwash	100	Drainageways	Yes
33A: Haploxerolls-Fluvaquents complex, nearly level	Fluvaquents	50	Flood plains	Yes
49A: Kiakus silt loam, 2 to 5 percent slopes	Munset	2	Depressions	Yes
49B: Kiakus silt loam, 5 to 10 percent slopes	Munset	2	Depressions	Yes
68: Fluvaquentic Endoaquolls, nearly level	Fluvaquentic Endoaquolls	100	Flood plains	Yes
72: Aqualfs, nearly level	Aqualfs	95	Alluvial fans	Yes
73A: Dalig loam, 2 to 8 percent slopes	Aqualfs	5	Alluvial fans	Yes
74A: Tigit ashy loam, 2 to 8 percent slopes	Aqualfs	5	Alluvial fans	Yes
95: Konert silt loam, drained, 0 to 2 percent slopes	Konert Munset	90 5	Flood plains Depressions	Yes Yes
95A: Konert silt loam, 0 to 2 percent slopes	Konert Munset	95 5	Flood plains Depressions	Yes Yes

See footnotes at end of table.

Table 4.--Hydric Soils--Continued

Map symbol and map unit name	Component	Percent- age of map unit	Landform	Hy- dra
96: Blockhouse silt loam, 0 to 5 percent slopes	Munset	5	Depressions	Yes
97: Munset stony silt loam, 0 to 5 percent slopes	Munset	90	Depressions of plateaus	Yes
97A: Setnum silt loam, 0 to 3 percent slopes	Munset	5	Depressions	Yes
97B: Blockhouse-Munset complex, 5 to 10 percent slopes	Munset	40	Depressions of plateaus	Yes
99: Dallesport fine sandy loam, 0 to 8 percent slopes	Aquolls	5	Depressions	Yes
103: Dallesport-Rock outcrop complex, 0 to 15 percent slopes	Aquolls	5	Depressions	Yes
115: Aquolls, nearly level	Aquolls	85	Depressions	Yes
116: Aquolls-Rock outcrop complex, nearly level	Aquolls	65	Depressions	Yes
181: Umapine silt loam, 0 to 2 percent slopes	Weirman	5	Flood plains	Yes
187: Cleman very fine sandy loam, 2 to 5 percent slopes	Weirman	5	Flood plains	Yes
190: Weirman fine sandy loam, 0 to 5 percent slopes	Weirman	90	Flood plains	Yes

See footnotes at end of table.

Table 4.--Hydric Soils--Continued

Map symbol and map unit name	Component	Percent- age of map unit	Landform	Hy- dra
196: Mondovi silt loam, 0 to 2 percent slopes	Munset	5	Depressions	Yes
495: Konner silt loam, 0 to 3 percent slopes	Munset	10	Depressions	Yes

Definition of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that are:
 - A. somewhat poorly drained and have a water table at the surface (0.0 feet) during season, or
 - B. poorly drained or very poorly drained and have either:
 - 1.) a water table at the surface (0.0 feet) during the growing season if text coarse sand, sand, or fine sand in all layers within a depth of 20 inches
 - 2.) a water table at a depth of 0.5 foot or less during the growing season if is equal to or greater than 6.0 in/hr in all layers within a depth of 20
 - 3.) a water table at a depth of 1.0 foot or less during the growing season if is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for a long or very long duration during the growing
4. Soils that are frequently flooded for a long or very long duration during the growing

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
9C: Quincy-----	In 0-8 8-60	Sand Loamy fine sand, fine sand, sand		A-3 A-2	0 0	0 0	100 100	100 100	65-90 65-80
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
10: Pits, gravel----	0-60	Gravel, cobbles			---	---	---	---	---
10B: Andic Haplocryalfs---	0-12 12-27	Gravelly ashly loam Very gravelly ashly loam, very cobbly ashly loam	ML, SM SM, GM	A-4, A-5 A-5, A-1, A- 2, A-4	0 0	0 0-30	70-90 60-85	50-75 30-60	40-70 25-55
	27-39	Very gravelly ashly loam, extremely gravelly ashly loam, very cobbly ashly loam	SM, GP-GM	A-1, A-2	0	0-30	50-75	20-50	15-40
	39-43	Unweathered bedrock			---	---	---	---	---
11: Xerands-----	0-8 8-36	Gravelly ashly sandy loam Gravelly ashly loam, gravelly ashly sandy loam, gravelly ashly sandy clay loam, very gravelly ashly sandy clay loam	SM SM	A-1, A-2 A-2, A-4	0 0	0-5 0-5	70-85 50-80	60-75 40-75	35-50 40-60
	36-60	Gravelly ashly loam, very gravelly ashly sandy loam, very gravelly ashly sandy clay loam	GM, SM	A-1, A-2, A-4	0	0-10	35-80	30-75	15-55
11A: Xerands-----	0-8 8-36	Gravelly ashly sandy loam Gravelly ashly loam, gravelly ashly sandy loam, gravelly ashly sandy clay loam, very gravelly ashly sandy clay loam	SM SM	A-1, A-2 A-2, A-4	0 0	0-5 0-5	70-85 50-80	60-75 40-75	35-50 40-60
	36-60	Gravelly ashly loam, very gravelly ashly sandy loam, very gravelly ashly sandy clay loam	GM, SM	A-1, A-2, A-4	0	0-10	35-80	30-75	15-55

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
11B: Xerands-----	In				Pct	Pct			
	0-8	Gravelly ashy sandy loam	SM	A-1, A-2	0	0-5	70-85	60-75	35-50
	8-36	Gravelly ashy loam, gravelly ashy sandy loam, gravelly ashy sandy clay loam, very gravelly ashy sandy clay loam	SM	A-2, A-4	0	0-5	50-80	40-75	40-60
	36-60	Gravelly ashy loam, very gravelly ashy sandy loam, very gravelly ashy sandy clay loam	GM, SM	A-1, A-2, A-4	0	0-10	35-80	30-75	15-55
11C: Xerands-----	0-8	Gravelly ashy sandy loam	SM	A-1, A-2	0	0-5	70-85	60-75	35-50
	8-36	Gravelly ashy loam, gravelly ashy sandy loam, gravelly ashy sandy clay loam, very gravelly ashy sandy clay loam	SM	A-2, A-4	0	0-5	50-80	40-75	40-60
	36-60	Gravelly ashy loam, very gravelly ashy sandy loam, very gravelly ashy sandy clay loam	GM, SM	A-1, A-2, A-4	0	0-10	35-80	30-75	15-55
12: Legall-----	0-8	Cobbly loam	CL-ML, ML	A-4	0	15-25	75-90	70-90	60-80
	8-40	Very cobbly loam	GC-GM, SC	A-4	0	30-45	60-85	55-75	55-70
	40-60	Very cobbly clay loam, very cobbly loam	GC, GC-GM	A-4, A-6, A-2	0	45-55	60-70	55-60	45-55
12A: Tekison-----	0-8	Stony loam	ML	A-4	5-10	5-10	90-95	85-95	65-75
	8-18	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6, A-7	0-5	0-10	65-90	55-85	35-65
	18-44	Extremely cobbly clay, very cobbly clay	GC, SC	A-2, A-7	0-10	30-70	50-75	35-70	30-50
	44-60	Very cobbly clay loam, extremely cobbly clay loam, very cobbly clay	GC, SC	A-7, A-6, A-2	0-10	30-65	50-85	35-85	35-60
Rock outcrop-----	0-60	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
12B: Maydol-----	In				Pct	Pct			
	0-5	Very stony loam	ML, SM	A-4	20-40	0-10	80-90	70-80	60-70
	5-44	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-10	65-85	55-75	45-70
	44-60	Very gravelly loam	GC-GM, GM	A-2, A-4	0	0-15	45-60	35-50	30-45
12C: Legall-----	0-8	Cobbly loam	CL-ML, ML	A-4	0	15-25	75-90	70-90	60-80
	8-40	Very cobbly loam	GC-GM, SC	A-4	0	30-45	60-85	55-75	55-70
	40-60	Very cobbly clay loam, very cobbly loam	GC, GC-GM	A-4, A-6, A-2	0	45-55	60-70	55-60	45-55
	0-60	Unweathered bedrock			---	---	---	---	---
Rubble land-----	0-60	Fragmental material			---	---	---	---	---
12D: Lyville-----	0-7	Bouldery loam	ML	A-4	10-25	5-10	90-100	85-95	70-90
	7-13	Gravelly loam	SC-SM	A-4, A-2	0-5	0-5	70-80	60-75	50-65
	13-27	Gravelly loam, very gravelly loam	GC, GC-GM, SC, SC-SM	A-2, A-6	0-10	0-10	60-75	45-70	40-50
	27-44	Very gravelly loam, extremely gravelly loam	GC, GC-GM	A-1, A-2	0-10	0-10	35-50	25-40	20-35
	44-48	Unweathered bedrock			---	---	---	---	---
12E: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
	0-60	Fragmental material			---	---	---	---	---
	0-8	Cobbly loam	CL-ML, ML	A-4	0	15-25	75-90	70-90	60-80
	8-40	Very cobbly loam	GC-GM, SC	A-4	0	30-45	60-85	55-75	55-70
12F: Lyville-----	0-7	Bouldery loam	ML	A-4	10-25	5-10	90-100	85-95	70-90
	7-13	Gravelly loam	SC-SM	A-4, A-2	0-5	0-5	70-80	60-75	50-65
	13-27	Gravelly loam, very gravelly loam	GC, GC-GM, SC, SC-SM	A-2, A-6	0-10	0-10	60-75	45-70	40-50
	27-44	Very gravelly loam, extremely gravelly loam	GC, GC-GM	A-1, A-2	0-10	0-10	35-50	25-40	20-35
Rock outcrop----	44-48	Unweathered bedrock			---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
17B: Preshers-----	In				Pct	Pct			
	0-5	Stony loam	SC-SM, SM	A-4	15-25	10-15	75-85	70-80	60-70
	5-13	Gravelly loam, cobbly loam	GC-GM, GM, SC-SM, SM	A-4	0-5	0-25	70-85	65-80	55-65
	13-44 44-60	Loam, gravelly loam Very gravelly loam	CL, CL-ML GM	A-4, A-6 A-2, A-4	0 0-5	0-10 0-10	80-90 45-60	60-85 35-45	60-75 30-45
17D: Quiden-----	0-4	Stony loam	ML	A-4	10-15	0-5	90-100	80-90	70-85
	4-14	Loam, gravelly loam	ML	A-4	0	0	90-100	70-95	60-80
	14-60	Gravelly loam, loam	CL-ML, ML	A-4	0	0	85-100	70-85	60-75
18A: Kaiders-----	0-6	Stony loam	CL-ML	A-4	5-10	5-10	85-95	75-85	65-80
	6-20	Gravelly loam	SC-SM	A-2, A-4	0	0-10	70-80	60-75	50-65
	20-42	Gravelly loam, gravelly clay loam	SC	A-2, A-6	0	0-10	70-80	60-75	50-65
	42-60	Very gravelly loam, extremely gravelly loam	GC-GM	A-2	0	0-25	40-60	30-50	25-45
18B: Kaiders-----	0-6	Cobbly loam	CL-ML	A-4	0	25-35	90-100	80-90	65-85
	6-20	Gravelly loam	SC-SM	A-2, A-4	0	0-10	70-80	60-75	50-65
	20-42	Gravelly loam, gravelly clay loam	SC	A-2, A-6	0	0-10	70-80	60-75	50-65
	42-60	Very gravelly loam, extremely gravelly loam	GC-GM	A-2	0	0-25	40-60	30-50	25-45
18C: Kaiders-----	0-6	Stony loam	CL-ML	A-4	5-10	5-10	85-95	75-85	65-80
	6-20	Gravelly loam	SC-SM	A-2, A-4	0	0-10	70-80	60-75	50-65
	20-42	Gravelly loam, gravelly clay loam	SC	A-2, A-6	0	0-10	70-80	60-75	50-65
	42-60	Very gravelly loam, extremely gravelly loam	GC-GM	A-2	0	0-25	40-60	30-50	25-45
19: Kiakus-----	0-11	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100
	11-28	Silty clay loam, clay loam, loam	CL	A-6, A-4	0	0	90-100	80-95	65-95
	28-33	Gravelly clay loam, clay loam	CL, SC	A-6, A-7	0	0	75-100	70-90	45-90
	33-37	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
19: Munset-----	In				Pct	Pct			
	0-2	Stony silt loam	CL-ML	A-4	15-30	0-10	95-100	90-100	80-100
	2-16	Silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	85-100
	16-22	Gravelly clay, clay	CH	A-7	0	0	65-100	55-90	55-90
	22-25	Extremely gravelly sandy clay loam, very gravelly sandy clay loam	GP-GC, GC	A-2	0	0	35-55	25-45	20-40
	25-35	Unweathered bedrock			---	---	---	---	---
Wahoo-----	0-5	Stony clay loam	SC, CL	A-6	15-30	0-10	75-90	65-80	60-80
	5-12	Very stony clay loam, extremely stony clay loam, extremely stony silty clay loam	GC	A-2, A-7	25-50	25-30	35-70	20-65	20-50
	12-22	Unweathered bedrock			---	---	---	---	---
20: Nook-----	0-10	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95
	10-25	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	85-100	75-90
	25-60	Loam	CL, CL-ML	A-4, A-6	0	0	90-100	80-90	70-80
20A: Threecreeks-----	0-24	Silt loam	ML	A-4	0	0	95-100	90-100	80-90
	24-41	Silt loam, loam, sandy loam	ML, SM	A-4	0	0	90-100	85-100	60-75
	41-60	Gravelly sand, very gravelly sand, sand	SM, SP-SM	A-1	0-2	0-3	60-90	50-85	35-50
21: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
	0-60	Fragmental material			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
22: Fluentic Haploxerolls----	In				Pct	Pct			
	0-12	Sandy loam	SM, SC-SM	A-2, A-4	0	0-5	95-100	90-100	55-65
	12-26	Very gravelly loamy sand, gravelly sandy loam	GP-GM, SP-SM	A-1, A-4	0	0-25	40-100	30-100	15-65
	26-40	Sandy loam, gravelly sandy loam, very gravelly loamy sand	SM, GP-GM	A-1, A-2	0	0-10	40-90	30-85	20-60
	40-60	Gravelly sandy loam, very gravelly sand, gravelly loamy sand	GM, SM, GP-GM	A-1	0	0-20	40-65	30-60	25-35
Riverwash-----	0-60	Stratified sand to gravel			---	---	---	---	---
23: Gunn-----	0-6	Loam	CL-ML	A-4	0	0	90-100	80-100	70-95
	6-18	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100
	18-60	Clay loam, gravelly clay loam	CL, GC, SC	A-6	0	0	55-100	50-100	40-100
23A: Gunn-----	0-5	Stony loam	CL-ML	A-4					
	5-33	Loam, clay loam	CL, CL-ML	A-4, A-6	5-10	5-10	90-100	80-90	70-85
	33-60	Clay loam, gravelly clay loam	CL, GC, SC	A-6	0	0	95-100	90-100	80-100
23B: Gunn-----	0-15	Loam	CL-ML	A-4	0	0	90-100	80-100	70-95
	15-32	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100
	32-60	Clay loam, gravelly clay loam	CL, GC, SC	A-6	0	0	55-100	50-100	40-100
23C: Gunn-----	0-5	Stony loam	CL-ML	A-4	5-10	5-10	90-100	80-90	70-85
	5-33	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100
	33-60	Clay loam, gravelly clay loam	CL, GC, SC	A-6	0	0	60-100	50-90	40-90

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
24: Rockly-----	In				Pct	Pct			
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
	0-3	Cobbly loam	CL-ML	A-4	0	15-25	85-95	75-85	65-80
Itat-----	3-20	Gravelly loam	SC-SM	A-4, A-2	0	10-15	70-85	60-75	50-65
	20-30	Very gravelly loam	GC-GM	A-2, A-4	0	10-15	40-65	30-55	25-50
	30-60	Extremely cobbly loam, very gravelly loam, extremely gravelly sandy clay loam	GC-GM, GP-GC	A-2, A-1	0	10-50	35-55	25-45	20-40
	0-5	Extremely cobbly ash y loam	GC-GM	A-1, A-2, A-4	0-15	30-50	40-60	30-55	20-50
	5-12	Very gravelly ash y clay loam, extremely gravelly ash y clay loam, very cobbly ash y clay loam	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
25: Leidl-----	12-25	Very cobbly clay loam, very gravelly clay loam, extremely gravelly clay loam Unweathered bedrock	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
	25-29				---	---	---	---	---
	0-12	Very cobbly loam	SC, SC-SM	A-2, A-4, A-6	0-5	30-45	75-90	45-65	40-60
	12-22	Very gravelly loam	GC, GC-GM, SC	A-4, A-2, A-6	0-5	5-25	65-80	45-55	40-50
	22-60	Very cobbly loam, very cobbly clay loam, very cobbly silt loam	CL, GC	A-4, A-6	0-10	20-50	65-75	50-65	45-60
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
	0-7	Extremely cobbly ash y loam	GC-GM	A-1, A-2, A-4	0-15	30-50	40-60	30-55	20-50
25A: Leidl-----	7-24	Very cobbly clay loam, very gravelly clay loam, extremely gravelly clay loam Unweathered bedrock	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
	24-28				---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
25B: Leidl-----	In				Pct	Pct			
	0-5	Extremely cobbly ash loam	GC-GM	A-1, A-2, A-4	0-15	30-50	40-60	30-55	20-50
	5-12	Very gravelly ash clay loam, extremely gravelly ash clay loam, very cobbly ash clay loam	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
	12-25	Very cobbly clay loam, very gravelly clay loam, extremely gravelly clay loam	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
	25-29	Unweathered bedrock			---	---	---	---	---
Oroke-----	0-5	Stony silt loam	CL	A-4, A-6	10-25	0-10	85-95	75-85	70-80
	5-15	Gravelly silt loam	CL	A-4, A-6	0	5-15	80-90	75-85	65-75
	15-22	Very gravelly silt loam, very gravelly loam	GC	A-2, A-6	0	10-15	50-70	30-55	30-45
	22-60	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly loam	GC	A-2	0-10	15-40	35-50	25-40	20-30
25C: Leidl-----	0-5	Extremely cobbly ash loam	GC-GM	A-1, A-2, A-4	0-15	30-50	40-60	30-55	20-50
	5-12	Very gravelly ash clay loam, extremely gravelly ash clay loam, very cobbly ash clay loam	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
	12-25	Very cobbly clay loam, very gravelly clay loam, extremely gravelly clay loam	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
	25-29	Unweathered bedrock			---	---	---	---	---
Dillcourt-----	0-12	Very cobbly loam	SC, SC-SM	A-2, A-4, A-6	0-5	30-45	75-90	45-65	40-60
	12-22	Very gravelly loam	GC, GC-GM, SC	A-4, A-2, A-6	0-5	5-25	65-80	45-55	40-50
	22-60	Very cobbly loam, very cobbly clay loam, very cobbly silt loam	CL, GC	A-4, A-6	0-10	20-50	65-75	50-65	45-60

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
26: Mazdale-----	In				Pct	Pct			
	0-6	Very stony ashly loam	ML	A-4	15-30	0-15	80-90	70-80	60-75
	6-12	Gravelly ashly loam	SM	A-4	0	0-20	75-80	60-70	50-65
	12-28	Cobbly loam, gravelly loam, very cobbly loam	SM	A-4	0	15-30	75-80	60-70	50-70
26C: Mazdale-----	28-60	Very cobbly loam, extremely cobbly loam	GM	A-2, A-4	0	40-60	55-75	45-55	40-50
	0-6	Very stony ashly loam	ML	A-4	15-30	0-15	80-90	70-80	60-75
	6-12	Gravelly ashly loam	SM	A-4	0	0-20	75-80	60-70	50-65
	12-28	Cobbly loam, gravelly loam, very cobbly loam extremely cobbly loam	SM	A-4	0	15-30	75-80	60-70	50-70
Rock outcrop----	28-60	Very cobbly loam, extremely cobbly loam	GM	A-2, A-4	0	40-60	55-75	45-55	40-50
	0-60	Unweathered bedrock			---	---	---	---	---
	0-60	Fragmental material			---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---
26E: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
	0-60	Fragmental material			---	---	---	---	---
	0-6	Very stony ashly loam	ML	A-4	15-30	0-15	80-90	70-80	60-75
	6-12	Gravelly ashly loam	SM	A-4	0	0-20	75-80	60-70	50-65
Mazdale-----	12-28	Cobbly loam, gravelly loam, very cobbly loam Very cobbly loam, extremely cobbly loam	SM	A-4	0	15-30	75-80	60-70	50-70
	28-60	Very cobbly loam, extremely cobbly loam	GM	A-2, A-4	0	40-60	55-75	45-55	40-50
	0-5	Stony ashly sandy loam	SM	A-1, A-2	10-25	0-15	80-90	65-80	40-55
	5-13	Gravelly ashly sandy loam	SM	A-1, A-2	0	0-10	70-90	60-85	35-50
27B: Yedlick-----	13-60	Very gravelly sandy loam, very gravelly loam	GC-GM, GP-GM	A-1, A-2	0	0-15	40-60	35-50	20-45
	0-10	Ashy loam	ML	A-4	0	0	100	90-100	75-95
	10-17	Loam	ML	A-4	0	0	95-100	85-100	75-100
	17-33	Clay loam, loam	CL	A-6	0	0	80-95	70-90	60-85
28: Trelk-----	33-60	Loam, gravelly loam	CL-ML, ML	A-4	0	0	80-95	70-85	60-85

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
30: Rockly-----	In				Pct	Pct			
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
	0-21 21-38 38-42	Silt loam Silty clay loam, clay loam, loam Unweathered bedrock	CL-ML, ML CL	A-4 A-6, A-4	0 0	0 0	95-100 90-100	90-100 80-95	80-100 65-95
30A: Rockly-----	0-4 4-10	Very gravelly loam Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GM GC, GM	A-1, A-2, A-4 A-1, A-2, A-6	0 0-5	5-15 10-55	55-65 30-65	30-60 25-60	25-50 25-50
	10-14	Unweathered bedrock			---	---	---	---	---
	0-11 11-33 33-37	Silt loam Clay loam, loam, silt loam Unweathered bedrock	CL-ML CL	A-4 A-6, A-4	0-5 0	0-5 0	100 95-100	95-100 90-100	85-95 85-95
	0-4 4-10	Very gravelly loam Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GM GC, GM	A-1, A-2, A-4 A-1, A-2, A-6	0 0-5	5-15 10-55	55-65 30-65	30-60 25-60	25-50 25-50
	10-14	Unweathered bedrock			---	---	---	---	---
30B: Rockly-----	0-4 4-10	Very gravelly loam Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GM GC, GM	A-1, A-2, A-4 A-1, A-2, A-6	0 0-5	5-15 10-55	55-65 30-65	30-60 25-60	25-50 25-50
	10-14	Unweathered bedrock			---	---	---	---	---
	0-17 17-32 32-36	Silt loam Clay loam, loam, silt loam Unweathered bedrock	CL-ML CL	A-4 A-6, A-4	0-5 0	0-5 0	100 95-100	95-100 90-100	85-95 85-95
					---	---	---	---	---
					---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
32A: Beezee-----	In				Pct	Pct			
	0-10	Cobbly loam	ML, SM	A-4	0	15-25	80-90	70-80	60-75
	10-18	Cobbly loam, very cobbly loam	GM, SM	A-4	0	25-40	60-85	50-70	50-60
	18-33	Very cobbly loam, very cobbly clay loam	SM, GM	A-4, A-6	0	30-45	55-80	45-70	45-65
	33-60	Cobbly loam, cobbly clay loam	ML	A-4, A-6	0	15-25	80-90	70-80	60-75
32B: Beezee-----	0-10	Cobbly loam	ML, SM	A-4	0	15-25	80-90	70-80	60-75
	10-18	Cobbly loam, very cobbly loam	GM, SM	A-4	0	25-40	60-85	50-70	50-60
	18-33	Very cobbly loam, very cobbly clay loam	SM, GM	A-4, A-6	0	30-45	55-80	45-70	45-65
	33-60	Cobbly loam, cobbly clay loam	ML	A-4, A-6	0	15-25	80-90	70-80	60-75
33: Riverwash-----	0-60	Stratified sand to gravel			---	---	---	---	---
33A: Haploxerolls----	0-10	Fine sandy loam	ML, SM	A-4	0	0-5	95-100	80-100	65-85
	10-24	Cobbly fine sandy loam, very gravelly sandy loam, gravelly loam	SM	A-2, A-4	0	5-25	60-85	50-75	35-60
	24-41	Extremely gravelly sandy loam, gravelly fine sandy loam, very cobbly sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2	0	10-35	40-80	20-70	10-50
	41-60	Extremely gravelly sand, extremely cobbly sand, very gravelly loamy sand	GP, GP-GM	A-1	0	20-40	25-45	10-40	5-20
Fluvaquents-----	0-6	Silt loam	ML	A-4	0	0	100	90-100	80-100
	6-32	Silt loam, loam, clay loam	CL-ML, ML, CL	A-4, A-6	0	0	100	90-100	75-100
	32-60	Sand, gravelly sand, loamy sand, sandy loam, sandy clay loam	SM, SP-SM, SC, SP-SC, CL	A-1, A-2, A-6	0	0	85-100	70-90	35-90

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
36: Jebe-----	In				Pct	Pct			
	0-5	Gravelly loam	SM	A-4	0	0-10	70-80	60-75	55-65
	5-31	Very gravelly loam, very cobbly loam	GM	A-4, A-2	0	15-35	65-70	50-60	45-50
	31-60	Very gravelly loam, very cobbly loam, extremely gravelly clay loam	GC, GC-GM	A-2	0	25-35	50-60	30-50	25-30
36C: Jebe-----	0-5	Gravelly loam	SM	A-4	0	0-10	70-80	60-75	55-65
	5-31	Very gravelly loam, very cobbly loam	GM	A-4, A-2	0	15-35	65-70	50-60	45-50
	31-60	Very gravelly loam, very cobbly loam, extremely gravelly clay loam	GC, GC-GM	A-2	0	25-35	50-60	30-50	25-30
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
Rubble land-----	0-60	Fragmental material			---	---	---	---	---
39A: Hyprairie-----	0-7	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	7-25	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	25-48	Silt loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-95	85-95	75-95
	48-60	Silt loam, loam, gravelly clay loam	CL	A-6	0	0	75-95	60-80	60-70
39B: Hyprairie-----	0-7	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	7-25	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	25-48	Silt loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-95	85-95	75-95
	48-60	Silt loam, loam, gravelly clay loam	CL	A-6	0	0	75-95	60-80	60-70
39C: Hyprairie-----	0-16	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	16-23	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	23-40	Silt loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-95	85-95	75-95
	40-60	Silt loam, loam, gravelly clay loam	CL	A-6	0	0	75-95	60-80	60-70

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
39D: Hyprairie-----	In				Pct	Pct			
	0-16	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	16-23	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	23-40	Silt loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-95	85-95	75-95
	40-60	Silt loam, loam, gravelly clay loam	CL	A-6	0	0	75-95	60-80	60-70
41: Oreoke-----	0-5	Stony silt loam	CL	A-4, A-6	10-25	0-10	85-95	75-85	70-80
	5-15	Gravelly silt loam	CL	A-4, A-6	0	5-15	80-90	75-85	65-75
	15-22	Very gravelly silt loam, very gravelly loam	GC	A-6, A-2	0	10-15	50-70	30-55	30-45
	22-60	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly loam	GC	A-2	0-10	15-40	35-50	25-40	20-30
Legall-----	0-8	Cobbly loam	CL-ML, ML	A-4	0	15-25	75-90	70-90	60-80
	8-40	Very cobbly loam	GC-GM, SC	A-4	0	30-45	60-85	55-75	55-70
	40-60	Very cobbly clay loam, very cobbly loam	GC, GC-GM	A-4, A-6, A-2	0	45-55	60-70	55-60	45-55
42: Oreoke-----	0-5	Stony silt loam	CL	A-4, A-6	10-25	0-10	85-95	75-85	70-80
	5-15	Gravelly silt loam	CL	A-4, A-6	0	5-15	80-90	75-85	65-75
	15-22	Very gravelly silt loam, very gravelly loam	GC	A-2, A-6	0	10-15	50-70	30-55	30-45
	22-60	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly loam	GC	A-2	0-10	15-40	35-50	25-40	20-30
Beezee-----	0-10	Cobbly loam	ML, SM	A-4	0	15-25	80-90	70-80	60-75
	10-18	Cobbly loam, very cobbly loam	GM, SM	A-4	0	25-40	60-85	50-70	50-60
	18-33	Very cobbly loam, very cobbly clay loam	SM, GM	A-4, A-6	0	30-45	55-80	45-70	45-65
	33-60	Cobbly loam, cobbly clay loam	ML	A-4, A-6	0	15-25	80-90	70-80	60-75

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
43: Oreoke-----	In				Pct	Pct			
	0-5	Stony silt loam	CL	A-4, A-6	10-25	0-10	85-95	75-85	70-80
	5-15	Gravelly silt loam	CL	A-4, A-6	0	5-15	80-90	75-85	65-75
	15-22	Very gravelly silt loam, very gravelly loam	GC	A-2, A-6	0	10-15	50-70	30-55	30-45
	22-60	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly loam	GC	A-2	0-10	15-40	35-50	25-40	20-30
Colockum-----	0-20	Silt loam	CL-ML	A-4	0	0-5	95-100	95-100	85-95
	20-34	Silt loam, silty clay loam	CL	A-6, A-4	0	0-5	95-100	95-100	85-95
	34-46	Silty clay loam, silt loam, gravelly loam	CL	A-6, A-4	0	0-5	95-100	70-90	60-80
	46-60	Gravelly silty clay loam, very gravelly silty clay loam, very gravelly clay loam	CL, GC, SC	A-6, A-4	0	0-20	65-80	45-75	45-70
49A: Kiakus-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100
	16-29	Silty clay loam, clay loam, loam	CL	A-6, A-4	0	0	90-100	80-95	65-95
	29-38	Gravelly clay loam, clay loam	CL, SC	A-6, A-7	0	0	75-100	70-90	45-90
	38-42	Unweathered bedrock			---	---	---	---	---
49B: Kiakus-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100
	16-29	Silty clay loam, clay loam, loam	CL	A-6, A-4	0	0	90-100	80-95	65-95
	29-38	Gravelly clay loam, clay loam	CL, SC	A-6, A-7	0	0	75-100	70-90	45-90
	38-42	Unweathered bedrock			---	---	---	---	---
49C: Kiakus-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100
	16-29	Silty clay loam, clay loam, loam	CL	A-6, A-4	0	0	90-100	80-95	65-95
	29-38	Gravelly clay loam, clay loam	CL, SC	A-6, A-7	0	0	75-100	70-90	45-90
	38-42	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
49D: Kiakus-----	In				Pct	Pct			
	0-16	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100
	16-29	Silty clay loam, clay loam, loam	CL	A-6, A-4	0	0	90-100	80-95	65-95
	29-38	Gravelly clay loam, clay loam	CL, SC	A-6, A-7	0	0	75-100	70-90	45-90
49E: Kiakus-----	38-42	Unweathered bedrock			---	---	---	---	---
	0-16	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-100
	16-29	Silty clay loam, clay loam, loam	CL	A-6, A-4	0	0	90-100	80-95	65-95
	29-38	Gravelly clay loam, clay loam	CL, SC	A-6, A-7	0	0	75-100	70-90	45-90
Rockly-----	38-42	Unweathered bedrock			---	---	---	---	---
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
55: Firoke-----	0-6	Ashy fine sandy loam	SM	A-4	0-5	0-10	80-100	75-100	50-70
	6-19	Gravelly ash loam, cobbly ash sandy loam, gravelly ash fine sandy loam, gravelly ashy sandy loam	GM, ML, SM	A-1, A-2, A-4	0	0-15	60-80	55-75	45-70
	19-60	Extremely cobbly ash sandy loam, very cobbly ashy loam, extremely stony ash loam, very gravelly ash loam	GM	A-1, A-2	0-45	15-55	35-55	30-50	25-45
55A: Kingtain-----	0-2	Stony ash loam	ML, SM	A-4	10-15	10-15	75-85	65-75	55-70
	2-10	Gravelly ash loam	ML, SM	A-4, A-2	0-10	0-10	70-85	60-75	50-70
	10-49	Very gravelly ash loam, very cobbly ash loam, extremely gravelly ash loam	GM	A-2, A-4	0-10	5-40	40-70	30-60	30-50
	49-60	Extremely cobbly loam, very cobbly loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0-10	10-45	25-60	20-50	15-45

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
59D: Bercumb-----	In				Pct	Pct			
	0-6	Cobbly ashy loam	SM	A-4					
	6-12	Gravelly ashy sandy loam, gravelly ashy loam	GM, SM	A-2, A-4	0	10-20	70-90	60-80	40-60
	12-28	Gravelly sandy loam, gravelly loam	GM, SM	A-2, A-4	0	0	60-85	50-75	40-65
	28-60	Gravelly sandy loam, gravelly loam, very gravelly loam	GM, SM	A-1, A-2, A-4	0	0	50-80	40-70	30-50
61: Grayland-----	0-8	Silty clay loam	MH, ML	A-7	0	0	100	100	90-100
	8-15	Silty clay loam, silt loam	MH, ML	A-7	0	0	100	100	90-100
	15-24	Silty clay loam, silty clay, clay	MH	A-7	0	0	100	100	90-100
	24-60	Sandy loam	SM	A-4, A-5	0	0	100	95-100	60-80
	0-4	Ashy sandy loam	SM	A-2	0	0	85-95	75-90	45-60
63: Panal-----	4-12	Gravelly ashy sandy loam, ashy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	80-95	70-90	45-80
	12-44	Sandy loam, loam, gravelly sandy loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	85-95	70-90	50-80
	44-60	Sandy loam, loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	95-100	80-100	60-90
	0-5	Extremely cobbly ashy loam	GC-GM	A-1, A-2, A-4	0-15	30-50	40-60	30-55	20-50
	5-12	Very gravelly ashy clay loam, extremely gravelly ashy clay loam, very cobbly ashy clay loam	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
65: Leidl-----	12-25	Very cobbly clay loam, very gravelly clay loam, extremely gravelly clay loam	GC, GP-GC	A-2	0-10	15-40	20-55	15-45	10-45
	25-29	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
69A: Goldendale-----	In				Pct	Pct			
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-95
	10-15	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100
	15-45	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
69B: Goldendale-----	45-49	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-95
	10-15	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100
	15-45	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
69C: Goldendale-----	45-49	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-95
	10-15	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100
	15-45	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
72: Aqualfs-----	45-49	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-95
	10-15	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100
	15-45	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
73A: Dalig-----	27-60	Sandy clay loam, clay loam, loam	CL	A-6	0	0-5	90-100	90-100	85-95
	0-6	Loam	CL, CL-ML, ML	A-4	0	0	100	90-100	80-95
	6-13	Silty clay loam	CL	A-6	0	0	85-100	80-100	75-95
	13-27	Clay loam, silty clay loam	CL	A-6	0	0-5	95-100	90-100	85-95
73B: Dalig-----	0-15	Loam	ML	A-4	0	0	90-100	85-100	65-95
	15-60	Clay loam, loam, gravelly clay loam, paragravelly clay loam	CL	A-6	0	0	75-100	70-100	70-100
	0-15	Loam	ML	A-4	0	0	90-100	85-100	65-95
	15-60	Clay loam, loam, gravelly clay loam, paragravelly clay loam	CL	A-6	0	0	75-100	70-100	70-100

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
81: Sugarbowl-----	In				Pct	Pct			
	0-4	Ashy loam	ML	A-4	0	0	95-100	85-95	80-90
	4-41	Ashy loam	ML	A-4	0	0	90-100	75-90	65-85
82B: Kingtain-----	41-60	Gravelly ashly loam	SM	A-4	0	0	75-85	50-75	45-55
	0-15	Gravelly ashly loam	GM, ML, SM	A-2, A-4	0	0-5	65-85	55-75	40-70
	15-49	Very gravelly ashly loam, very cobbly ashly loam, extremely gravelly ashly loam	GM	A-2, A-4	0-10	5-40	40-70	30-60	30-50
82D: Kingtain-----	49-60	Extremely cobbly loam, very cobbly loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0-10	10-45	25-60	20-50	15-45
	0-16	Cobbly ashly loam	ML, SM	A-4	0-2	15-25	85-95	75-85	60-80
	16-49	Gravelly ashly loam	ML, SM	A-4, A-2	0	0-10	70-85	60-75	50-70
82E: Kingtain-----	49-60	Extremely cobbly loam, very cobbly loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0-10	10-45	25-60	20-50	15-45
	0-12	Stony ashly loam	ML, SM	A-4	10-15	10-15	75-85	65-75	55-70
	12-49	Gravelly ashly loam	ML, SM	A-4, A-2	0-10	0-10	70-85	60-75	50-70
83: Volash-----	49-60	Extremely cobbly loam, very cobbly loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0-10	10-45	25-60	20-50	15-45
	0-60	Unweathered bedrock			---	---	---	---	---
	0-12	Ashy loam	ML	A-4, A-5	0	0	95-100	90-100	75-95
84: Trouter-----	12-25	Ashy loam	ML	A-4, A-5	0	0	95-100	90-100	75-95
	25-48	Ashy loam	ML	A-4, A-5	0	0	95-100	85-100	70-95
	48-52	Unweathered bedrock			---	---	---	---	---
	0-4	Stony ashly loam	ML	A-4	10-15	0-15	100	90-100	80-95
	4-29	Ashy loam	ML	A-4	0	0	95-100	85-100	70-95
	29-33	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
84A: Troutcr-----	0-4	Stony ashy loam		A-4	10-15	0-15	100	90-100	80-95
	4-29	Ashy loam	ML	A-4	0	0	95-100	85-100	70-95
	29-33	Unweathered bedrock			---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
86A: Chemawa-----	0-26	Ashy loam	ML	A-4	0	0	100	95-100	80-95
	26-60	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	90-100	85-95
86B: Chemawa-----	0-26	Ashy loam	ML	A-4	0	0	100	95-100	80-95
	26-60	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	90-100	85-95
86C: Chemawa-----	0-26	Ashy loam	ML	A-4	0	0	100	95-100	80-95
	26-60	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	90-100	85-95
86D: Chemawa-----	0-26	Ashy loam	ML	A-4	0	0	100	95-100	80-95
	26-60	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	90-100	85-95
87A: Eagreek-----	0-26	Gravelly ashy loam	ML, SM	A-4	0	0	95-100	60-75	50-70
	26-60	Gravelly ashy loam	ML, SM	A-4	0	0	95-100	60-75	50-70
87A: Eagreek-----	0-19	Paragravelly loam	CL-ML	A-4	0	0-10	90-100	85-100	70-90
	19-60	Very paragravelly loam	CL, CL-ML	A-4, A-6	0	0-5	90-100	80-100	65-90
88A: Timberhead-----	0-28	Gravelly ashy loam	GM, ML, SM	A-2, A-4	0	0-5	65-80	55-70	45-65
	28-42	Gravelly ashy loam	ML, SM	A-4	0	0-5	75-85	50-70	50-65
	42-60	Very paragravelly ashy loam, extremely paragravelly ashy loam	ML	A-4	0	0-10	90-100	85-100	70-95
88B: Timberhead-----	0-28	Gravelly ashy loam	GM, ML, SM	A-4, A-2	0	0-5	65-80	55-70	45-65
	28-42	Gravelly ashy loam	ML, SM	A-4	0	0-5	75-85	50-70	50-65
	42-60	Extremely paragravelly ashy loam, very paragravelly ashy loam	ML	A-4	0	0-10	90-100	85-100	70-95

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
89: McElroy-----	In				Pct	Pct			
	0-11	Gravelly ashly loam	GM, ML	A-4, A-2	0	0-5	60-80	55-70	50-70
	11-23	Very gravelly loam, gravelly loam	GM, ML	A-4, A-2	0	0-5	50-80	45-70	40-70
89B: McElroy-----	23-60	Very gravelly loam, very cobbly loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0-10	15-40	30-60	20-50	15-40
	0-11	Gravelly ashly loam	GM, ML	A-4, A-2	0	0-5	60-80	55-70	50-70
	11-23	Very gravelly loam, gravelly loam	GM, ML	A-4, A-2	0	0-5	50-80	45-70	40-70
Rock outcrop----	23-60	Very gravelly loam, very cobbly loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0-10	15-40	30-60	20-50	15-40
	0-60	Unweathered bedrock			---	---	---	---	---
90: Hood-----	0-15	Loam	ML	A-4	0	0	100	100	90-95
	15-60	Silt loam, loam	CL-ML, ML	A-4	0	0	100	100	80-90
90A: Hood-----	0-15	Loam	ML	A-4	0	0	100	100	90-95
	15-60	Silt loam, loam	CL-ML, ML	A-4	0	0	100	100	80-90
90B: Hood-----	0-10	Loam	ML	A-4	0	0	100	100	90-95
	10-60	Silt loam, loam	CL-ML, ML	A-4	0	0	100	100	80-90
90C: Hood-----	0-7	Loam	ML	A-4	0	0	100	100	90-95
	7-60	Silt loam, loam	CL-ML, ML	A-4	0	0	100	100	80-90
92: Husum-----	0-10	Gravelly ashly loam	ML, SM	A-4, A-2	0	0-15	70-85	60-75	50-70
	10-28	Very gravelly ashly loam, extremely gravelly ashly loam	GM	A-1, A-2	0	5-30	25-50	20-40	15-35
	28-60	Extremely cobbly loamy sand, extremely gravelly loamy sand, extremely gravelly sandy loam	GP-GM	A-1	0-25	20-50	25-45	15-30	10-20

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	<i>In</i>				<i>Pct</i>	<i>Pct</i>			
92A: Husum-----	0-15	Gravelly ashly loam	ML, SM GM	A-4, A-2	0	0-15	70-85	60-75	50-70
	15-36	Very gravelly ashly loam, extremely gravelly ashly loam		A-1, A-2	0	5-30	25-50	20-40	15-35
	36-60	Extremely cobbly loamy sand, extremely gravelly loamy sand, extremely gravelly sandy loam	GP-GM	A-1	0-25	20-50	25-45	15-30	10-20
92B: Husum-----	0-10	Gravelly ashly loam	ML, SM GM	A-4, A-2	0	0-15	70-85	60-75	50-70
	10-32	Very gravelly ashly loam, extremely gravelly ashly loam		A-1, A-2	0	5-30	25-50	20-40	15-35
	32-60	Extremely cobbly loamy sand, extremely gravelly loamy sand, extremely gravelly sandy loam	GP-GM	A-1	0-25	20-50	25-45	15-30	10-20
93: Goldendale-----	0-14	Silt loam	CL-ML CL, CL-ML CL	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam		A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam		A-6	0	0	95-100	90-100	85-95
93A: Goldendale-----	0-14	Silt loam	CL-ML CL, CL-ML CL	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam		A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam		A-6	0	0	95-100	90-100	85-95
93B: Goldendale-----	0-14	Silt loam	CL-ML CL, CL-ML CL	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam		A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam		A-6	0	0	95-100	90-100	85-95
93C: Goldendale-----	0-14	Silt loam	CL-ML CL, CL-ML CL	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam		A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam		A-6	0	0	95-100	90-100	85-95

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
93D: Goldendale-----	In				Pct	Pct			
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
94: Lorena-----	0-16	Silt loam	CL-ML	A-4	0	0	100	95-100	85-95
	16-31	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-95
	31-36	Clay loam, loam, silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-95
	36-40	Unweathered bedrock			---	---	---	---	---
94A: Lorena-----	0-16	Silt loam	CL-ML	A-4	0	0	100	95-100	85-95
	16-31	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-95
	31-36	Clay loam, loam, silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-95
	36-40	Unweathered bedrock			---	---	---	---	---
94B: Lorena-----	0-16	Silt loam	CL-ML	A-4	0	0	100	95-100	85-95
	16-31	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-95
	31-36	Clay loam, loam, silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-95
	36-40	Unweathered bedrock			---	---	---	---	---
94C: Lorena-----	0-10	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	10-25	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-95
	25-30	Clay loam, loam, silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-95
	30-34	Unweathered bedrock			---	---	---	---	---
94E: Lorena-----	0-10	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	10-25	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-95
	25-30	Clay loam, loam, silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-95
	30-34	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
94E: Rockly-----	In				Pct	Pct			
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
95: Konert-----	0-8	Silt loam	CL	A-6, A-4	0	0	100	95-100	95-100
	8-45	Silty clay, silty clay loam	CH, CL	A-7, A-6	0	0	100	100	95-100
	45-60	Silt loam, silty clay loam, clay loam	CL	A-4, A-6	0	0	100	100	95-100
95A: Konert-----	0-17	Silt loam	CL	A-6, A-4	0	0	100	95-100	95-100
	17-60	Silty clay, silty clay loam	CH, CL	A-7, A-6	0	0	100	100	95-100
96: Blockhouse-----	0-12	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	12-29	Silt loam, silty clay loam	CL-ML, CL	A-4	0	0	100	100	90-100
	29-60	Silt loam, clay loam, loam	CL	A-6	0	0	100	100	85-95
97: Munset-----	0-2	Stony silt loam	CL-ML	A-4	15-30	0-10	95-100	90-100	80-100
	2-16	Silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	85-100
	16-22	Gravelly clay, clay	CH	A-7	0	0	65-100	55-90	55-90
	22-25	Extremely gravelly sandy clay loam, very gravelly sandy clay loam	GP-GC, GC	A-2	0	0	35-55	25-45	20-40
97A: Setnum-----	25-35	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-90
	10-17	Silt loam, loam	CL	A-6, A-4	0	0	95-100	90-100	75-85
	17-31	Clay loam, clay	CH, CL	A-7	0	0	100	90-100	85-95
	31-39	Clay loam, loam	CL	A-6, A-7	0	0	90-100	80-100	60-90
	39-43	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
101: Dalliesport-----	In				Pct	Pct			
	0-3	Very cobbly fine sandy loam	GM, SM	A-4, A-2	2-5	25-40	60-95	50-90	40-60
	3-11	Cobbly fine sandy loam	SM	A-2, A-4	0-5	15-25	80-95	70-90	45-75
	11-19	Sandy loam, gravelly fine sandy loam, fine sandy loam	SM	A-2, A-4	0	0	80-95	70-90	45-75
	19-24	Very gravelly sandy loam	GM	A-1	0-5	0-15	50-65	35-50	20-35
	24-60	Very gravelly coarse sand, extremely cobbly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GW	A-1	0-15	25-45	20-40	5-35	5-20
102: Dalliesport-----	0-11	Gravelly fine sandy loam	SM	A-4, A-2	0	0	75-100	60-75	55-70
	11-20	Sandy loam, gravelly fine sandy loam, fine sandy loam	SM	A-2, A-4	0	0	85-95	70-90	45-75
	20-25	Very gravelly sandy loam	GM	A-1	0-5	0-15	50-65	35-50	20-35
	25-60	Very gravelly coarse sand, extremely cobbly coarse sand, extremely gravelly coarse sand	GW	A-1	0-15	25-45	20-40	5-35	5-20
103: Dalliesport-----	0-3	Very cobbly fine sandy loam	GM, SM	A-4, A-2	2-5	25-40	60-95	50-90	40-60
	3-11	Cobbly fine sandy loam	SM	A-2, A-4	0-5	15-25	80-95	70-90	45-75
	11-19	Sandy loam, gravelly fine sandy loam, fine sandy loam	SM	A-2, A-4	0	0	80-95	70-90	45-75
	19-24	Very gravelly sandy loam	GM	A-1	0-5	0-15	50-65	35-50	20-35
	24-60	Very gravelly coarse sand, extremely cobbly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GW	A-1	0-15	25-45	20-40	5-35	5-20
Rock outcrop-----	0-60	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
104: Dalliesport-----	In				Pct	Pct			
	0-3	Very cobbly fine sandy loam	GM, SM	A-4, A-2	2-5	25-40	60-95	50-90	40-60
	3-11	Cobbly fine sandy loam	SM	A-2, A-4	0-5	15-25	80-95	70-90	45-75
	11-19	Sandy loam, gravelly fine sandy loam, fine sandy loam	SM	A-2, A-4	0	0	80-95	70-90	45-75
	19-24	Very gravelly sandy loam	GM	A-1	0-5	0-15	50-65	35-50	20-35
Rock outcrop-----	24-60	Very gravelly coarse sand, extremely cobbly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GW	A-1	0-15	25-45	20-40	5-35	5-20
	0-60	Unweathered bedrock			---	---	---	---	---
105: Ewall-----	0-14	Loamy sand	SM	A-2	0	0	100	100	50-70
	14-60	Sand, loamy fine sand, fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	85-100	40-70
106: Ewall-----	0-14	Loamy sand	SM	A-2	0	0	100	100	50-70
	14-60	Sand, loamy fine sand, fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	85-100	40-70
107: Ewall-----	0-13	Loamy sand	SM	A-2	0	0	100	100	50-70
	13-60	Sand, loamy fine sand, fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	85-100	40-70
108: Ewall-----	0-13	Loamy sand	SM	A-2	0	0	100	100	50-70
	13-60	Sand, loamy fine sand, fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	85-100	40-70
Rock outcrop-----	0-60	Unweathered bedrock			---	---	---	---	---
109: Ewall-----	0-11	Loamy sand	SM	A-2	0	0	100	100	50-70
	11-60	Sand, loamy fine sand, fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	85-100	40-70
Rock outcrop-----	0-60	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
113B: Tekison-----	In				Pct	Pct			
	0-8	Stony loam	ML	A-4	5-10	5-10	90-95	85-95	65-75
	8-18	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6, A-7	0-5	0-10	65-90	55-85	35-65
	18-44	Extremely cobbly clay, very cobbly clay	GC, SC	A-2, A-7	0-10	30-70	50-75	35-70	30-50
	44-60	Very cobbly clay loam, extremely cobbly clay loam, very cobbly clay	GC, SC	A-7, A-6, A-2	0-10	30-65	50-85	35-85	35-60
113C: Tekison-----	0-8	Stony loam	ML	A-4	5-10	5-10	90-95	85-95	65-75
	8-18	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6, A-7	0-5	0-10	65-90	55-85	35-65
	18-44	Extremely cobbly clay, very cobbly clay	GC, SC	A-2, A-7	0-10	30-70	50-75	35-70	30-50
	44-60	Very cobbly clay loam, extremely cobbly clay loam, very cobbly clay	GC, SC	A-7, A-6, A-2	0-10	30-65	50-85	35-85	35-60
115: Aquolls-----	0-9	Loam	CL-ML, ML	A-4	0	0	100	95-100	85-95
	9-26	Loam, cobbly loam	CL-ML, ML	A-4	0	0-5	90-100	85-95	60-85
	26-32	Loam, cobbly loam	CL-ML, ML	A-4	0	0-25	85-95	80-90	60-75
	32-45	Very cobbly clay loam, cobbly clay loam	CL, SC	A-2, A-4, A-6	0	25-45	80-90	50-70	50-65
	45-49	Unweathered bedrock			---	---	---	---	---
116: Aquolls-----	0-9	Loam	CL-ML, ML	A-4	0	0	100	95-100	85-95
	9-26	Loam, cobbly loam	CL-ML, ML	A-4	0	0-5	90-100	85-95	60-85
	26-32	Loam, cobbly loam	CL-ML, ML	A-4	0	0-25	85-95	80-90	60-75
	32-45	Very cobbly clay loam, cobbly clay loam	CL, SC	A-2, A-4, A-6	0	25-45	80-90	50-70	50-65
	45-49	Unweathered bedrock			---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
120: Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
Haploxerolls----	0-4	Sandy loam	SM	A-4	0	0-5	85-95	75-90	50-60
	4-15	Gravelly sandy loam, very gravelly sandy loam, cobbly sandy loam	SM	A-1	0	5-25	65-85	55-75	35-50
	15-19	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
121:	In				Pct	Pct			
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
Haploxerolls----	0-13	Gravelly sandy loam	GM	A-2, A-4	0	0-10	60-80	50-75	40-60
	13-60	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly silt loam	GM, GP, GP-GM	A-1, A-2, A- 3, A-4	0-15	15-55	5-65	5-60	0-55
122:									
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
Haploxerolls----	0-13	Gravelly sandy loam	GM	A-2, A-4	0	0-10	60-80	50-75	40-60
	13-60	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly silt loam	GM, GP, GP-GM	A-1, A-2, A- 3, A-4	0-15	15-55	5-65	5-60	0-55
123A:									
Galliente-----	0-16	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	75-95
	16-60	Clay loam, clay	CH, CL	A-7	0	0	100	100	95-100
125:									
Scooteney-----	0-6	Silt loam	ML, SM	A-4	0	0	90-100	80-100	70-90
	6-22	Loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	90-100	80-100	70-90
	22-33	Gravelly silt loam, gravelly fine sandy loam, cobbly loam	SM	A-2, A-4	0	0-20	80-100	60-85	55-75
	33-60	Very gravelly fine sandy loam, very cobbly sandy loam	SM	A-1, A-2	0	0-40	70-90	35-55	30-50
127:									
Scooteney-----	0-6	Cobbly silt loam	ML, SM	A-4	0-5	15-30	75-90	70-80	60-80
	6-22	Loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	90-100	80-100	70-90
	22-33	Gravelly silt loam, gravelly fine sandy loam, cobbly loam	SM	A-2, A-4	0	0-20	80-100	60-85	55-75
	33-60	Very gravelly fine sandy loam, very cobbly sandy loam	SM	A-1, A-2	0	0-40	70-90	35-55	30-50

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
130: Oxy-----	In				Pct	Pct			
	0-7	Silt loam		A-4	0	0	90-100	85-100	75-100
	7-21	Gravelly silt loam, gravelly sandy loam, gravelly clay loam	ML SC, SC-SM	A-2, A-4, A-6	0	0-10	70-95	60-75	45-70
	21-25	Unweathered bedrock			---	---	---	---	---
131: Onyx-----	0-8	Silt loam		A-4	0	0	100	100	95-100
	8-21	Silt loam	ML	A-4	0	0	100	100	95-100
	21-49	Silt loam	ML	A-4	0	0	100	100	95-100
	49-60	Gravelly silt loam, very gravelly fine sandy loam, gravelly loam	GM	A-1, A-2, A-4	0	0-5	45-80	40-75	40-65
132: Esquatzel-----	0-17	Silt loam	ML	A-4	0	0	100	100	95-100
	17-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	85-100
136: Bickleton-----	0-19	Silt loam	ML	A-4	0	0	100	95-100	85-100
	19-30	Silt loam	ML	A-4	0	0	100	95-100	90-100
	30-44	Silt loam, silty clay loam	CL-ML, ML	A-4	0	0	85-100	80-100	75-95
	44-52	Extremely gravelly silty clay loam, very gravelly silty clay loam	GC	A-2	0	0-25	40-65	20-50	15-40
137: Bickleton-----	52-56	Unweathered bedrock			---	---	---	---	---
	0-19	Silt loam	ML	A-4	0	0	100	95-100	85-100
	19-30	Silt loam	ML	A-4	0	0	100	95-100	90-100
	30-44	Silt loam, silty clay loam	CL-ML, ML	A-4	0	0	85-100	80-100	75-95
	44-52	Extremely gravelly silty clay loam, very gravelly silty clay loam	GC	A-2	0	0-25	40-65	20-50	15-40
	52-56	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
140: Broadax-----	In 0-17 17-38 38-60	 Silt loam Silty clay loam, silt loam Loam, sandy loam, silt loam	 ML CL ML	 A-4 A-6 A-4	 0 0 0	 Pct			
141: Broadax-----	 0-17 17-38 38-60	 Silt loam Silty clay loam, silt loam Loam, sandy loam, silt loam	 ML CL ML	 A-4 A-6 A-4	 0 0 0	 Pct			
150: Morrow-----	 0-16 16-31 31-38 38-42	 Silt loam Silty clay loam, silt loam Silt loam, silty clay loam Unweathered bedrock	 ML CL, ML ML	 A-4 A-6, A-7 A-4	 0 0 0	 Pct			
151: Morrow-----	 0-16 16-31 31-38 38-42	 Silt loam Silty clay loam, silt loam Silt loam, silty clay loam Unweathered bedrock	 ML CL, ML ML	 A-4 A-6, A-7 A-4	 0 0 0	 Pct			
155: Morrow-----	 0-16 16-31 31-38 38-42	 Silt loam Silty clay loam, silt loam Silt loam, silty clay loam Unweathered bedrock	 ML CL, ML ML	 A-4 A-6, A-7 A-4	 0 0 0	 Pct			
Bakeoven-----	 0-4 4-10 10-14	 Very cobbly loam Very gravelly clay loam, very cobbly loam, very gravelly loam Unweathered bedrock	 GM GC, GM	 A-2, A-4 A-4, A-6	 0-15 0-15	 25-40 10-40			

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
159B: Panak-----	In				Pct	Pct			
	0-7	Ashy loam	ML	A-4	0	0	95-100	80-100	70-95
	7-19	Loam, silt loam	ML	A-4	0	0	90-100	80-100	75-90
	19-42	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	80-95	70-80
	42-60	Loam, clay loam, gravelly clay loam, very paragravelly clay loam	CL	A-6	0	0-10	80-100	65-90	60-75
159C: Panak-----	0-8	Cobbly ashy loam	ML	A-4	0	15-25	90-95	80-90	70-85
	8-26	Loam, silt loam	ML	A-4	0	0	90-100	80-100	75-90
	26-42	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	80-95	70-80
	42-60	Loam, clay loam, gravelly clay loam, very paragravelly clay loam	CL	A-6	0	0-10	80-100	65-90	60-75
	0-8	Cobbly ashy loam	ML	A-4	0	15-25	90-95	80-90	70-85
159D: Panak-----	8-26	Loam, silt loam	ML	A-4	0	0	90-100	80-100	75-90
	26-42	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	80-95	70-80
	42-60	Loam, clay loam, gravelly clay loam, very paragravelly clay loam	CL	A-6	0	0-10	80-100	65-90	60-75
	0-17	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100
	17-35	Silt loam	CL	A-6	0	0	95-100	90-100	90-100
161: Van Nostern----	35-39	Unweathered bedrock			---	---	---	---	---
	0-20	Silt loam	ML	A-4	0	0	95-100	95-100	95-100
	20-60	Silt loam	ML	A-4	0	0	100	100	95-100
181: Umapine-----	0-10	Very fine sandy loam	CL-ML, SM	A-4	0	0	95-100	90-100	80-95
	10-43	Stratified loamy fine sand to silt loam	CL-ML, SM	A-4	0	0	95-100	90-100	70-85
	43-60	Stratified very gravelly sand to silt loam	GC-GM, SM, GM, CL-ML	A-2, A-4	0	0-10	55-100	45-100	40-70

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
190: Weirman-----	In				Pct	Pct			
	0-4	Fine sandy loam	SM	A-4, A-2	0	0-5	90-95	80-90	65-75
	4-10	Gravelly loamy sand, very gravelly loamy sand	GM, GP-GM, SM	A-1	0	0-10	45-75	40-70	15-30
	10-60	Very gravelly loamy sand, very gravelly sand, extremely gravelly sand	GP, GP-GM	A-1	0-5	5-25	30-50	10-45	5-20
193: Swalecreek-----	0-18	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	18-31	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	85-95
	31-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-100	75-90
194: Swalecreek-----	0-18	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	18-31	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	85-95
	31-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-100	75-90
195: Swalecreek-----	0-18	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	18-31	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	85-95
	31-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-100	75-90
Niva-----	0-12	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100
	12-17	Silty clay loam, clay loam	CL, ML	A-6	0	0	100	95-100	85-100
	17-27	Cemented material			---	---	---	---	---
196: Mondovi-----	0-6	Silt loam	ML	A-4	0	0	100	95-100	95-100
	6-60	Silt loam	ML	A-4	0	0	100	95-100	95-100

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
200: Malaga-----	In				Pct	Pct			
	0-3	Gravelly fine sandy loam	GM, SM	A-1, A-4	0	0	60-85	55-75	45-65
	3-17	Gravelly loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-4	0	0-10	70-85	55-75	45-60
	17-21	Extremely gravelly sandy loam, very gravelly fine sandy loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0	10-30	25-60	15-50	15-40
	21-60	Extremely gravelly loam Extremely gravelly coarse sand, very cobbly sand, extremely gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1	0-10	15-30	20-60	10-50	10-30
211: Hezel-----	0-5	Loamy fine sand	SM	A-2	0	0	100	100	50-85
	5-17	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75
	17-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	95-100	90-100	80-100
212: Hezel-----	0-5	Loamy fine sand	SM	A-2	0	0	100	100	50-85
	5-17	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75
	17-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	95-100	90-100	80-100
213: Hezel-----	0-5	Loamy fine sand	SM	A-2	0	0	100	100	50-85
	5-17	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75
	17-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	95-100	90-100	80-100
225: Kiona-----	0-5	Loamy fine sand	SM	A-2	0	0	100	100	50-85
	5-17	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75
	17-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	95-100	90-100	80-100
225: Kiona-----	0-9	Stony very fine sandy loam	SM, ML	A-4	10-15	5-10	90-95	70-80	35-65
	9-25	Cobbly silt loam, very cobbly silt loam, cobbly very fine sandy loam	GM, ML	A-4, A-2	0-10	20-35	60-85	50-75	45-70
	25-60	Extremely cobbly loam, extremely cobbly silt loam, very cobbly sandy loam	GM	A-1, A-2, A-4	0-10	25-45	45-70	40-60	35-50

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments			Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	Pct	4	10	40
226: Kiona-----	In					Pct	Pct			
	0-9	Very stony silt loam	ML, GM, SM	A-4	15-35	0-15	60-85	50-80	50-75	4
	9-25	Cobbly silt loam, very cobbly silt loam, cobbly very fine sandy loam	GM, ML, SM	A-4, A-2	0-15	30-40	50-85	40-75	40-70	3
	25-60	Extremely cobbly loam, extremely cobbly silt loam, very cobbly sandy loam	GM	A-1, A-2, A-4	0-15	40-55	30-70	20-60	20-50	1
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---
227: Cheviot-----	0-7	Very stony silt loam	GC-GM, SC-SM	A-2, A-4	5-25	20-30	65-80	45-75	40-55	3
	7-40	Very cobbly silt loam, very cobbly loam, very gravelly silt loam	GC-GM, SC-SM	A-2, A-4	0-10	10-35	50-70	45-60	40-55	3
	40-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	45-55	40-70	30-65	25-65	2
228: Borfin-----	0-7	Cobbly clay loam	ML	A-6, A-7	0-10	15-30	75-90	65-80	60-75	5
	7-18	Very gravelly clay, very cobbly clay	GC, GM	A-7	0	15-45	65-75	45-55	45-55	4
	18-24	Clay loam, gravelly clay loam, gravelly clay	MH, ML	A-6, A-7	0	0-10	70-90	60-85	60-70	5
	24-34	Cemented material			---	---	---	---	---	---
	34-38	Unweathered bedrock			---	---	---	---	---	---
229: Cheviot-----	0-7	Very stony silt loam	GC-GM, SC-SM	A-2, A-4	5-25	20-30	65-80	45-75	40-55	3
	7-40	Very cobbly silt loam, very cobbly loam, very gravelly silt loam	GC-GM, SC-SM	A-2, A-4	0-10	10-35	50-70	45-60	40-55	3
	40-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	45-55	40-70	30-65	25-65	2

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
229: Wipple-----	In				Pct	Pct			
	0-6	Very stony clay loam	SC	A-6	45-55	5-15	75-90	50-65	45-60
	6-15	Very gravelly clay loam, very cobbly clay loam	GC	A-2, A-6	0-10	5-40	50-80	40-75	35-50
	15-23	Very gravelly clay, very cobbly clay, extremely cobbly clay	CH, SC, GC	A-2, A-7	0-10	25-45	45-70	40-65	30-60
	23-60	Very cobbly clay, very cobbly clay loam, extremely cobbly clay loam, very gravelly clay loam	GC	A-2, A-6	0-10	25-55	45-70	30-60	30-50
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
230: Cheviot-----	0-7	Very stony silt loam	GC-GM, SC-SM	A-2, A-4	5-25	20-30	65-80	45-75	40-55
	7-40	Very cobbly silt loam, very cobbly loam, very gravelly silt loam	GC-GM, SC-SM	A-2, A-4	0-10	10-35	50-70	45-60	40-55
	40-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	45-55	40-70	30-65	25-65
Ralls-----	0-5	Stony silt loam	ML	A-4	10-15	0-5	70-85	65-85	55-70
	5-17	Gravelly silt loam, silt loam	ML	A-4	0-5	0-5	70-85	65-85	55-70
	17-36	Gravelly clay loam, gravelly silt loam, silt loam	CL	A-6	0-5	0-15	70-85	60-75	55-70
	36-47	Gravelly silt loam, gravelly clay loam	SC, SC-SM	A-4, A-6	0-5	0-15	70-80	60-75	45-60
	47-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam	GC, GC-GM	A-1, A-2	0-5	0-25	40-60	35-55	25-40
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
240: Niva-----	0-7	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	7-17	Silty clay loam, clay loam	CL, ML	A-6	0	0	100	90-100	85-100
	17-21	Cemented material			---	---	---	---	---
	21-31	Cemented material			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
274: Prosser-----	In				Pct	Pct			
	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95
	4-20	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	80-90
	20-32	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	85-100	80-95	70-85
275: Prosser-----	32-36	Unweathered bedrock			---	---	---	---	---
	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95
	4-20	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	80-90
	20-32	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	85-100	80-95	70-85
277: Prosser-----	32-36	Unweathered bedrock			---	---	---	---	---
	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95
	4-20	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	80-90
	20-32	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	85-100	80-95	70-85
Bakeoven-----	32-36	Unweathered bedrock			---	---	---	---	---
	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95
	4-20	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	90-100	80-90
	20-32	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	85-100	80-95	70-85
280: Quincy-----	32-36	Unweathered bedrock			---	---	---	---	---
	0-4	Very cobbly loam	GM	A-2, A-4	0-15	25-40	50-70	40-65	35-55
	4-10	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55
	10-14	Unweathered bedrock			---	---	---	---	---
281: Quincy-----	0-27	Loamy sand	SM	A-2	0	0	100	90-100	65-100
	27-60	Loamy fine sand, loamy sand, sand	SM	A-2	0	0	100	90-100	65-80
	0-27	Loamy sand	SM	A-2	0	0	100	90-100	65-100
	27-60	Loamy fine sand, loamy sand, sand	SM	A-2	0	0	100	90-100	65-80
285: Quinton-----	0-23	Fine sand	SM	A-2	0	0	95-100	90-100	70-80
	23-30	Gravelly loamy fine sand, sand	SM, SP-SM	A-1, A-2	0	0-10	75-100	70-100	40-80
	30-34	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
290: Koehler-----	In				Pct	Pct			
	0-15	Loamy fine sand	SM	A-2	0	0	85-95	80-90	70-80
	15-32	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	85-95	80-90	65-80
	32-36	Very gravelly loamy fine sand, very gravelly fine sand, gravelly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0	0	50-75	45-70	30-50
296: Swalecreek-----	36-60	Cemented material			---	---	---	---	---
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	14-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-95	75-90
297: Swalecreek-----	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	14-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-95	75-90
298: Swalecreek-----	0-16	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	16-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-95	75-90
Rockly-----	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
299: Swalecreek-----	0-16	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	16-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-95	75-90
Rockly-----	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
330: Badge-----	In				Pct	Pct			
	0-11	Very stony silt loam	GM, ML	A-4, A-2	5-25	15-45	55-75	50-70	45-65
	11-41	Very cobbly silt loam, extremely cobbly loam, very gravelly clay loam	GC, GP-GC	A-2, A-6	0-20	0-50	40-70	20-65	15-55
	41-60	Very cobbly silt loam, extremely gravelly silt loam, very gravelly loam	GM, GP-GM, ML	A-1, A-2, A-4	0-5	15-50	50-80	20-75	15-70
343: Shano-----	0-7	Silt loam	ML	A-4	0	0	100	100	95-100
	7-34	Silt loam	ML	A-4	0	0	100	100	95-100
	34-60	Silt loam	ML	A-4	0	0	100	100	95-100
346: Shano-----	0-7	Silt loam	ML	A-4	0	0	100	100	95-100
	7-34	Silt loam	ML	A-4	0	0	100	100	95-100
	34-60	Silt loam	ML	A-4	0	0	100	100	95-100
347: Shano-----	0-7	Silt loam	ML	A-4	0	0	100	100	95-100
	7-34	Silt loam	ML	A-4	0	0	100	100	95-100
	34-60	Silt loam	ML	A-4	0	0	100	100	95-100
348: Shano-----	0-7	Silt loam	ML	A-4	0	0	100	100	95-100
	7-34	Silt loam	ML	A-4	0	0	100	100	95-100
	34-60	Silt loam	ML	A-4	0	0	100	90-100	90-100
350: Willis-----	0-7	Silt loam	ML	A-4	0	0	100	100	90-100
	7-15	Silt loam	ML	A-4	0	0	100	100	90-100
	15-33	Silt loam	ML	A-4	0	0-5	95-100	90-100	85-100
	33-43	Cemented material			---	---	---	---	---
351: Willis-----	0-7	Silt loam	ML	A-4	0	0	100	100	90-100
	7-15	Silt loam	ML	A-4	0	0	100	90-100	90-100
	15-33	Silt loam	ML	A-4	0	0-5	95-100	90-100	85-100
	33-43	Cemented material			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
352: Willis-----	In				Pct	Pct			
	0-7	Silt loam	ML	A-4	0	0	100	100	90-100
	7-15	Silt loam	ML	A-4	0	0	100	90-100	90-100
	15-33	Silt loam	ML	A-4	0	0-5	95-100	90-100	85-100
353: Willis-----	33-43	Cemented material			---	---	---	---	---
	0-7	Silt loam	ML	A-4	0	0	100	100	90-100
	7-15	Silt loam	ML	A-4	0	0	100	90-100	90-100
	15-33	Silt loam	ML	A-4	0	0-5	95-100	90-100	85-100
360: Selah-----	33-43	Cemented material			---	---	---	---	---
	0-11	Silt loam	ML	A-4	0	0	100	100	90-100
	11-27	Silt loam, silty clay loam, clay loam	CL	A-6	0	0-5	100	90-100	85-95
	27-39	Clay loam, gravelly clay loam	CL, GC	A-6	0	0-10	65-95	55-90	50-85
361: Selah-----	39-50	Cemented material			---	---	---	---	---
	50-54	Unweathered bedrock			---	---	---	---	---
	0-11	Silt loam	ML	A-4	0	0	100	100	90-100
	11-27	Silt loam, silty clay loam, clay loam	CL	A-6	0	0-5	100	90-100	85-95
362: Selah-----	27-39	Clay loam, gravelly clay loam	CL, GC	A-6	0	0-10	65-95	55-90	50-85
	39-50	Cemented material			---	---	---	---	---
	50-54	Unweathered bedrock			---	---	---	---	---
	0-11	Silt loam	ML	A-4	0	0	100	100	90-100
362: Selah-----	11-27	Silt loam, silty clay loam, clay loam	CL	A-6	0	0-5	100	90-100	85-95
	27-39	Clay loam, gravelly clay loam	CL, GC	A-6	0	0-10	65-95	55-90	50-85
	39-50	Cemented material			---	---	---	---	---
	50-54	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
365: Selah-----	In				Pct	Pct			
	0-11	Silt loam	ML	A-4	0	0	100	100	90-100
	11-27	Silt loam, silty clay loam, clay loam	CL	A-6	0	0-5	100	90-100	85-95
	27-39	Clay loam, gravelly clay loam	CL, GC	A-6	0	0-10	65-95	55-90	50-85
	39-50 50-54	Cemented material Unweathered bedrock			---	---	---	---	---
Bakeoven-----	0-4	Very cobbly loam	GM	A-2, A-4	0-15	25-40	50-70	40-65	35-55
	4-10	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55
	10-14	Unweathered bedrock			---	---	---	---	---
374: Thiessen-----	0-6	Very stony silt loam	GC	A-2, A-6	15-25	15-35	50-70	45-65	40-55
	6-23	Very cobbly clay loam, very gravelly clay loam, very gravelly clay, very cobbly clay	GC	A-2, A-6	0-5	30-45	40-70	35-65	30-50
	23-30	Extremely cobbly clay loam, very cobbly clay loam, very cobbly clay, very gravelly clay loam	GC	A-2	0-5	30-65	40-70	35-65	20-40
	30-34	Unweathered bedrock			---	---	---	---	---
375: Lickskillet----	0-8	Cobbly silt loam	CL, CL-ML, ML	A-4	0-5	5-30	70-95	60-80	55-75
	8-18	Very gravelly clay loam, very gravelly silt loam, very cobbly loam	GC, GM	A-2, A-7	0-10	5-50	40-70	30-65	25-50
	18-22	Unweathered bedrock			---	---	---	---	---
376: Lickskillet----	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0-10	85-100	80-100	70-85
	8-18	Very gravelly clay loam, very gravelly silt loam, very cobbly loam	GC, GM	A-2, A-7	0-10	5-50	40-70	30-65	25-50
	18-22	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
377: Lickskilllet----	In				Pct	Pct			
	0-8	Cobbly silt loam	CL, CL-ML, ML	A-4	0-5	5-30	70-95	60-80	55-75
	8-18	Very gravelly clay loam, fine very gravelly silt	GC, GM	A-2, A-7	0-10	5-50	40-70	30-65	25-50
	18-22	loam, very cobbly loam Unweathered bedrock			---	---	---	---	---
378: Starbuck-----	0-3	Cobbly silt loam	ML	A-4	0	15-40	80-100	75-80	70-80
	3-13	Gravelly silt loam, fine sandy loam, silt loam	ML, SM	A-4	0	0-15	80-90	60-90	50-75
	13-17	Unweathered bedrock			---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---
379: Rock outcrop---- Rubble land----	0-60	Unweathered bedrock			---	---	---	---	---
	0-60	Fragmental material			---	---	---	---	---
	0-7	Very stony silt loam	GC-GM, SC-SM	A-2, A-4	5-25	20-30	65-80	45-75	40-55
	7-40	Very cobbly silt loam, very cobbly loam, very gravelly silt loam	GC-GM, SC-SM	A-2, A-4	0-10	10-35	50-70	45-60	40-55
380: Cheviot-----	40-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	45-55	40-70	30-65	25-65
	0-7	Very stony silt loam	GC-GM, SC-SM	A-2, A-4	5-25	20-30	65-80	45-75	40-55
	7-40	Very cobbly silt loam, very cobbly loam, very gravelly silt loam	GC-GM, SC-SM	A-2, A-4	0-10	10-35	50-70	45-60	40-55
	40-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	45-55	40-70	30-65	25-65
Lickskilllet----	0-8	Cobbly silt loam	CL, CL-ML, ML	A-4	0-5	5-30	70-95	60-80	55-75
	8-18	Very gravelly clay loam, very gravelly silt loam, very cobbly loam	GC, GM	A-2, A-7	0-10	5-50	40-70	30-65	25-50
	18-22	Unweathered bedrock			---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--			
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	
381: Ralls-----	In				Pct	Pct				
	0-5	Stony silt loam	ML	A-4	10-15	0-5	70-85	65-85	55-70	
	5-17	Gravelly silt loam, silt loam	ML	A-4	0-5	0-5	70-85	65-85	55-70	
	17-36	Gravelly clay loam, gravelly silt loam, silt loam	CL	A-6	0-5	0-15	70-85	60-75	55-70	
	36-47	Gravelly silt loam, gravelly clay loam	SC, SC-SM	A-4, A-6	0-5	0-15	70-80	60-75	45-60	
	47-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam	GC, GC-GM	A-1, A-2	0-5	0-25	40-60	35-55	25-40	
Cheviot-----	0-7	Very stony silt loam	GC-GM, SC-SM	A-2, A-4	5-25	20-30	65-80	45-75	40-55	
	7-40	Very cobbly silt loam, very cobbly loam, very gravelly silt loam	GC-GM, SC-SM	A-2, A-4	0-10	10-35	50-70	45-60	40-55	
	40-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	45-55	40-70	30-65	25-65	
Licksillet-----	0-8	Cobbly silt loam	CL, CL-ML, ML	A-4	0-5	5-30	70-95	60-80	55-75	
	8-18	Very gravelly clay loam, very gravelly silt loam, very cobbly loam	GC, GM	A-2, A-7	0-10	5-50	40-70	30-65	25-50	
	18-22	Unweathered bedrock			---	---	---	---	---	
390: Renslow-----	0-13	Silt loam	ML	A-4	0	0	100	95-100	95-100	
	13-20	Silt loam	CL-ML	A-4	0	0	100	95-100	95-100	
	20-60	Silt loam	CL-ML	A-4	0	0	100	95-100	95-100	
Ralls-----	0-5	Stony silt loam	ML	A-4	10-15	0-5	70-85	65-85	55-70	
	5-17	Gravelly silt loam, silt loam	ML	A-4	0-5	0-5	70-85	65-85	55-70	
	17-36	Gravelly clay loam, gravelly silt loam, silt loam	CL	A-6	0-5	0-15	70-85	60-75	55-70	
	36-47	Gravelly silt loam, gravelly clay loam	SC, SC-SM	A-4, A-6	0-5	0-15	70-80	60-75	45-60	
	47-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam	GC, GC-GM	A-1, A-2	0-5	0-25	40-60	35-55	25-40	

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
390: Wipple-----	In				Pct	Pct			
	0-7	Cobbly clay loam	CL	A-6, A-4	0	25-40	80-100	70-100	65-100
	7-12	Very gravelly clay loam, very cobbly clay loam	GC	A-2, A-6	0-10	5-40	50-80	40-75	35-50
	12-29	Very gravelly clay, very cobbly clay, extremely cobbly clay	CH, SC, GC	A-2, A-7	0-10	25-45	45-70	40-65	30-60
	29-60	Very cobbly clay, very cobbly clay loam, extremely cobbly clay loam, very gravelly clay loam	GC	A-2, A-6	0-10	25-55	45-70	30-60	30-50
391: Broadax-----	0-17	Silt loam	ML	A-4	0	0	100	100	95-100
	17-38	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100
	38-60	Loam, sandy loam, silt loam	ML	A-4	0	0	90-100	85-100	80-100
	0-20	Silt loam	CL-ML	A-4	0	0-5	95-100	95-100	85-95
Colockum-----	20-34	Silt loam, silty clay loam	CL	A-6, A-4	0	0-5	95-100	95-100	85-95
	34-46	Silty clay loam, silt loam, gravelly loam	CL	A-6, A-4	0	0-5	95-100	70-90	60-80
	46-60	Gravelly silty clay loam, very gravelly silty clay loam, very gravelly clay loam	CL, GC, SC	A-6, A-4	0	0-20	65-80	45-75	45-70
	0-8	Stony ashly silt loam	CL-ML, ML, SC-SM, SM	A-4	10-15	10-15	80-90	65-80	55-75
Tronsen-----	8-14	Very gravelly clay loam, very cobbly clay loam, very gravelly clay	GC	A-2, A-6, A-7	0-10	10-25	50-70	40-65	35-60
	14-60	Extremely gravelly clay, very cobbly clay, very cobbly clay loam, very gravelly clay loam	GC	A-2, A-7	0-10	10-40	25-60	20-55	20-45

Table 5.--Engineering Properties--Continued

[illegible]

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
396: Wipple-----	In				Pct	Pct			
	0-7	Cobbly clay loam	CL	A-6, A-4	0	25-40	80-100	70-100	65-100
	7-12	Very gravelly clay loam, very cobbly clay loam	GC	A-2, A-6	0-10	5-40	50-80	40-75	35-50
	12-29	Very gravelly clay, very cobbly clay, extremely cobbly clay	CH, SC, GC	A-2, A-7	0-10	25-45	45-70	40-65	30-60
	29-60	Very cobbly clay, very cobbly clay loam, extremely cobbly clay loam, very gravelly clay loam	GC	A-2, A-6	0-10	25-55	45-70	30-60	30-50
420: Endicott-----	0-10	Silt loam	ML	A-4	0	0	90-100	90-100	90-100
	10-30	Silt loam	CL-ML	A-4	0	0	90-100	90-100	90-100
	30-34	Cemented material			---	---	---	---	---
	0-5	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	70-85
	5-9	Silt loam, gravelly silt loam	ML, GM	A-4	0	0	60-100	55-100	50-95
421: Endicott-----	9-11	Silt loam, gravelly silt loam	ML, GM	A-4	0	0	60-100	55-100	50-95
	11-21	Cemented material			---	---	---	---	---
	0-12	Silt loam	ML	A-4	0	0	90-100	90-100	90-100
	12-33	Silt loam	CL-ML	A-4	0	0	90-100	90-100	90-100
	33-37	Cemented material			---	---	---	---	---
Moxee-----	0-5	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	70-85
	5-9	Silt loam, gravelly silt loam	ML, GM	A-4	0	0	60-100	55-100	50-95
	9-11	Silt loam, gravelly silt loam	ML, GM	A-4	0	0	60-100	55-100	50-95
	11-21	Cemented material			---	---	---	---	---
	0-11	Silt loam	ML	A-4	0	0	90-100	90-100	90-100
422: Endicott-----	11-31	Silt loam	CL-ML	A-4	0	0	90-100	90-100	90-100
	31-35	Cemented material			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification			Fragments			Percentage passing sieve number--			
			Unified	AASHTO	>10 inches	3-10 inches	Pct	Pct	4	10	40	
437: Warden-----	In						Pct	Pct				
	0-3	Silt loam	ML	A-4	0	0	0	0	95-100	95-100	85-100	
	3-15	Very fine sandy loam, silt loam	ML	A-4	0	0	0	0	95-100	95-100	95-100	
	15-60	Stratified very fine sandy loam to silt loam	ML	A-4	0	0	0	0	95-100	95-100	95-100	
438: Warden-----	0-3	Silt loam	ML	A-4	0	0	0	0	95-100	95-100	85-100	
	3-15	Very fine sandy loam, silt loam	ML	A-4	0	0	0	0	95-100	95-100	95-100	
	15-60	Stratified very fine sandy loam to silt loam	ML	A-4	0	0	0	0	95-100	95-100	95-100	
440: Kahlotus-----	0-10	Silt loam	ML	A-4	0	0	0	0	100	100	95-100	
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	0	0	100	90-100	85-95	
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	0	0	100	90-100	85-95	
441: Kahlotus-----	0-14	Silt loam	ML	A-4	0	0	0	0	100	100	95-100	
	14-33	Silt loam, very fine sandy loam	ML	A-4	0	0	0	0	100	90-100	85-95	
	33-60	Silt loam, very fine sandy loam	ML	A-4	0	0	0	0	100	90-100	85-95	
442: Kahlotus-----	0-10	Silt loam	ML	A-4	0	0	0	0	100	100	95-100	
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	0	0	100	90-100	85-95	
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	0	0	100	90-100	85-95	
443: Kahlotus-----	0-10	Silt loam	ML	A-4	0	0	0	0	100	100	95-100	
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	0	0	100	90-100	85-95	
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	0	0	100	90-100	85-95	

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	<i>In</i>				<i>Pct</i>	<i>Pct</i>			
444: Kahlotus-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95
Kennewick-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100
	10-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100
445: Kahlotus-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---
450: Kennewick-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100
	10-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100
451: Kennewick-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100
	10-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100
453: Kennewick-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100
	10-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100
485: Bakeoven-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100
	10-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100
	0-4	Very cobbly loam	GM	A-2, A-4	0-15	25-40	50-70	40-65	35-55
	4-10	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55
	10-14	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
538: Sagehill-----	0-4	Fine sandy loam	ML, SM ML	A-4	0	0	95-100	95-100	90-95
	4-24	Very fine sandy loam, silt loam, fine sandy loam		A-4	0	0	95-100	95-100	90-95
	24-60	Stratified fine sandy loam to silt loam		A-4	0	0	95-100	95-100	90-95
540: Walla Walla-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100
541: Walla Walla-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100
542: Walla Walla-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100
543: Walla Walla-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100
550: Walla Walla-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-40	Silt loam	ML	A-4	0	0	100	100	95-100
	40-50	Silt loam, silt	ML	A-4	0	0	100	100	95-100
551: Walla Walla-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-40	Silt loam	ML	A-4	0	0	100	100	95-100
	40-50	Silt loam, silt	ML	A-4	0	0	100	100	95-100
	50-60	Cemented material			---	---	---	---	---
	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-40	Silt loam	ML	A-4	0	0	100	100	95-100
	40-50	Silt loam, silt	ML	A-4	0	0	100	100	95-100
	50-60	Cemented material			---	---	---	---	---
	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-40	Silt loam	ML	A-4	0	0	100	100	95-100
	40-50	Silt loam, silt	ML	A-4	0	0	100	100	95-100
	50-60	Cemented material			---	---	---	---	---
	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-40	Silt loam	ML	A-4	0	0	100	100	95-100
	40-50	Silt loam, silt	ML	A-4	0	0	100	100	95-100
	50-60	Cemented material			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
552: Walla Walla-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-40	Silt loam	ML	A-4	0	0	100	100	95-100
	40-50	Silt loam, silt	ML	A-4	0	0	100	100	95-100
	50-60	Cemented material			---	---	---	---	---
555: Walla Walla-----	0-15	Very fine sandy loam	ML	A-4	0	0	100	100	95-100
	15-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100
556: Walla Walla-----	0-15	Very fine sandy loam	ML	A-4	0	0	100	100	95-100
	15-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100
557: Walla Walla-----	0-15	Very fine sandy loam	ML	A-4	0	0	100	100	95-100
	15-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100
558: Walla Walla-----	0-15	Very fine sandy loam	ML	A-4	0	0	100	100	95-100
	15-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100
560: Olex-----	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	85-100
	10-16	Gravelly silt loam, silt loam	CL-ML, GM, ML	A-4	0	0-10	60-90	50-85	45-75
	16-25	Extremely gravelly loam, very gravelly silt loam, extremely loam, extremely loam	GM, GP-GM	A-2, A-1	0	0-15	15-35	10-30	10-30
	25-60	Extremely gravelly loam, very gravelly silt loam, extremely loam, extremely loam	GM, GP-GM	A-1, A-2	0	0-15	15-35	10-30	10-30

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
561: Olex-----	In				Pct	Pct			
	0-9	Very cobbly silt loam	ML	A-4	0	20-40	95-100	90-100	85-100
	9-20	Gravelly silt loam, silt loam	CL-ML, GM, ML	A-4	0	0-10	60-90	50-85	45-75
	20-60	Extremely gravelly loam, very gravelly silt loam, extremely gravelly silt loam	GM, GP-GM	A-1, A-2	0	0-15	15-35	10-30	10-30
562: Olex-----	0-10	Silt loam	ML	A-4	0	0	95-100	90-100	85-100
	10-16	Gravelly silt loam, silt loam	CL-ML, GM, ML	A-4	0	0-10	60-90	50-85	45-75
	16-25	Extremely gravelly loam, very gravelly silt loam, extremely gravelly silt loam	GM, GP-GM	A-2, A-1	0	0-15	15-35	10-30	10-30
	25-60	Extremely gravelly loam, very gravelly silt loam, extremely gravelly silt loam	GM, GP-GM	A-1, A-2	0	0-15	15-35	10-30	10-30
570: Bollicker-----	0-18	Silt loam	ML	A-4	0	0	100	100	95-100
	18-25	Silt loam, loam	ML	A-4	0	0-10	80-100	75-100	70-90
	25-45	Silt loam	ML	A-4	0	0-15	80-100	75-100	70-90
	45-60	Loam, cobbly loam, gravelly loam	GM	A-2, A-4	0	0-20	45-80	40-75	30-65
571: Bollicker-----	0-18	Silt loam	ML	A-4	0	0	100	100	95-100
	18-25	Silt loam, loam	ML	A-4	0	0-10	80-100	75-100	70-90
	25-45	Silt loam	ML	A-4	0	0-15	80-100	75-100	70-90
	45-60	Loam, cobbly loam, gravelly loam	GM	A-2, A-4	0	0-20	45-80	40-75	30-65
580: Benwy-----	0-4	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-90
	4-11	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90
	11-37	Silt loam, loam, gravelly clay loam	CL, CL-ML, ML	A-4, A-6	0	0	85-100	70-100	65-90
	37-46	Gravelly clay loam, silt loam, loam	CL, CL-ML	A-4, A-6	0	0	85-95	65-95	55-85
	46-60	Gravelly silt loam, gravelly clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-10	80-100	65-95	55-85

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
581: Benwy-----	In				Pct	Pct			
	0-4	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-90
	4-11	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90
	11-37	Silt loam, loam, gravelly clay loam	CL, CL-ML, ML	A-4, A-6	0	0	85-100	70-100	65-90
	37-46	Gravelly clay loam, silt loam, loam	CL, CL-ML	A-4, A-6	0	0	85-95	65-95	55-85
	46-60	Gravelly silt loam, gravelly clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-10	80-100	65-95	55-85
582: Benwy-----	0-4	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-90
	4-11	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90
	11-37	Silt loam, loam, gravelly clay loam	CL, CL-ML, ML	A-4, A-6	0	0	85-100	70-100	65-90
	37-46	Gravelly clay loam, silt loam, loam	CL, CL-ML	A-4, A-6	0	0	85-95	65-95	55-85
	46-60	Gravelly silt loam, gravelly clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-10	80-100	65-95	55-85
583: Benwy-----	0-11	Silt loam	ML	A-4	0	0	95-100	90-100	80-90
	11-15	Silt loam, loam	ML	A-4	0	0	90-100	85-100	75-90
	15-28	Gravelly silt loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6	0	0	75-100	70-95	60-85
	28-41	Gravelly silt loam, loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0-10	70-95	65-90	55-80
	41-45	Cemented material			---	---	---	---	---
584: Mikkalo-----	0-15	Silt loam	ML	A-4	0	0	100	95-100	95-100
	15-26	Silt loam	ML	A-4	0	0	100	90-100	90-100
	26-38	Silt loam	ML	A-4	0	0	100	90-100	90-100
	38-42	Unweathered bedrock			---	---	---	---	---
Bakeoven-----	0-4	Very cobbly loam	GM	A-2, A-4	0-15	25-40	50-70	40-65	35-55
	4-10	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55
	10-14	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
585: Mikkalo-----	In				Pct	Pct			
	0-15	Silt loam	ML	A-4	0	0	100	95-100	95-100
	15-26	Silt loam	ML	A-4	0	0	100	90-100	90-100
	26-38	Silt loam	ML	A-4	0	0	100	90-100	90-100
Bakeoven-----	38-42	Unweathered bedrock			---	---	---	---	---
	0-4	Very cobbly loam	GM	A-2, A-4	0-15	25-40	50-70	40-65	35-55
	4-10	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55
	10-14	Unweathered bedrock			---	---	---	---	---
586: Mikkalo-----	0-15	Silt loam	ML	A-4	0	0	100	95-100	95-100
	15-26	Silt loam	ML	A-4	0	0	100	90-100	90-100
	26-38	Silt loam	ML	A-4	0	0	100	90-100	90-100
	38-42	Unweathered bedrock			---	---	---	---	---
587: Mikkalo-----	0-15	Silt loam	ML	A-4	0	0	100	95-100	95-100
	15-26	Silt loam	ML	A-4	0	0	100	90-100	90-100
	26-38	Silt loam	ML	A-4	0	0	100	90-100	90-100
	38-42	Unweathered bedrock			---	---	---	---	---
588: Mikkalo-----	0-15	Silt loam	ML	A-4	0	0	100	95-100	95-100
	15-26	Silt loam	ML	A-4	0	0	100	90-100	90-100
	26-38	Silt loam	ML	A-4	0	0	100	90-100	90-100
	38-42	Unweathered bedrock			---	---	---	---	---
589: Mikkalo-----	0-15	Silt loam	ML	A-4	0	0	100	95-100	95-100
	15-26	Silt loam	ML	A-4	0	0	100	90-100	90-100
	26-38	Silt loam	ML	A-4	0	0	100	90-100	90-100
	38-42	Unweathered bedrock			---	---	---	---	---
590: Mikkalo-----	0-8	Fine sandy loam	ML	A-4	0	0	100	95-100	95-100
	8-26	Silt loam	ML	A-4	0	0	100	90-100	90-100
	26-38	Silt loam	ML	A-4	0	0	100	90-100	90-100
	38-42	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
591: Lickskilliet-----	In				Pct	Pct			
	0-8	Cobbly silt loam	CL, CL-ML, ML	A-4	0-5	5-30	70-95	60-80	55-75
	8-18	Very gravelly clay loam, very gravelly silt loam, very cobbly loam	GC, GM	A-2, A-7	0-10	5-50	40-70	30-65	25-50
	18-22	Unweathered bedrock			---	---	---	---	---
Mikkalo-----	0-15	Silt loam	ML	A-4	0	0	100	95-100	95-100
	15-26	Silt loam	ML	A-4	0	0	100	90-100	90-100
	26-38	Silt loam	ML	A-4	0	0	100	90-100	90-100
	38-42	Unweathered bedrock			---	---	---	---	---
600: Meloza-----	0-3	Clay	CL	A-7	0	0-5	95-100	85-100	70-100
	3-35	Clay, silty clay	CH, CL	A-7	0	0-5	95-100	85-100	70-100
	35-60	Clay, clay loam, silty clay	CH, CL	A-7, A-6	0	0-5	95-100	85-100	85-100
670: Wato-----	0-19	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100
	19-36	Loam, very fine sandy loam	CL, CL-ML, ML	A-4	0	0	95-100	85-100	80-100
	36-49	Gravelly sandy loam, very fine sandy loam, sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-4	0	0	75-95	60-90	45-85
	49-60	Very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0	0-15	40-55	30-50	15-35
671: Wato-----	0-19	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100
	19-36	Loam, very fine sandy loam	CL-ML, ML, CL	A-4	0	0	95-100	85-100	80-100
	36-49	Gravelly sandy loam, very fine sandy loam, sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-4	0	0	75-95	60-90	45-85
	49-60	Very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0	0-15	40-55	30-50	15-35

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
672: Wato-----	In				Pct	Pct			
	0-19	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100
	19-36	Loam, very fine sandy loam	CL, CL-ML, ML	A-4	0	0	95-100	85-100	80-100
	36-49	Gravelly sandy loam, very fine sandy loam, sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-4	0	0	75-95	60-90	45-85
681: Nansene-----	49-60	Very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0	0-15	40-55	30-50	15-35
	0-18	Silt loam	ML	A-4	0	0	95-100	95-100	90-100
	18-50	Silt loam	ML	A-4	0	0	95-100	95-100	90-100
	50-60	Silt loam	ML	A-4	0	0	95-100	95-100	90-100
682: Nansene-----	0-18	Silt loam	ML	A-4	0	0	95-100	95-100	90-100
	18-50	Silt loam	ML	A-4	0	0	95-100	95-100	90-100
	50-60	Silt loam	ML	A-4	0	0	95-100	95-100	90-100
700: Urban land-----	---	---	---	---	---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---
	0-60	Unweathered bedrock			---	---	---	---	---
	0-60	Fragmental material			---	---	---	---	---
Haploxerolls----	0-13	Gravelly sandy loam	GM	A-2, A-4	0	0-10	60-80	50-75	40-60
	13-60	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly silt loam	GM, GP, GP-GM	A-1, A-2, A-3, A-4	0-15	15-55	5-65	5-60	0-55
724C: Haploxerolls----	0-13	Gravelly sandy loam	GM	A-2, A-4	0	0-10	60-80	50-75	40-60
	13-60	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly silt loam	GM, GP, GP-GM	A-1, A-2, A-3, A-4	0-15	15-55	5-65	5-60	0-55
	0-60	Fragmental material			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
724D: Haploxerolls----	0-13	Gravelly sandy loam	GM	A-2, A-4	0	0-10	60-80	50-75	40-60
	13-60	Extremely gravelly sandy loam, very gravelly sandy loam, very cobbly silt loam	GM, GP, GP-GM	A-3, A-4, A- 1, A-2	0-15	15-55	5-65	5-60	0-55
Rubble land----	0-60	Fragmental material			---	---	---	---	---
725: Cauley-----	0-15	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	15-60	Silt loam, gravelly silt loam	CL, CL-ML	A-4, A-6	0	0-5	75-95	70-90	65-85
726: Cauley-----	0-15	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	15-60	Silt loam, gravelly silt loam	CL, CL-ML	A-4, A-6	0	0-5	75-95	70-90	65-85
727: Cauley-----	0-15	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	15-60	Silt loam, gravelly silt loam	CL, CL-ML	A-4, A-6	0	0-5	75-95	70-90	65-85
729: Cauley-----	0-15	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	15-60	Silt loam, gravelly silt loam	CL, CL-ML	A-4, A-6	0	0-5	75-95	70-90	65-85
730: Stacker-----	0-15	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	15-60	Silt loam, gravelly silt loam	CL, CL-ML	A-4, A-6	0	0-5	75-95	70-90	65-85
Horseflat-----	0-18	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
	18-28	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
	28-32	Unweathered bedrock			---	---	---	---	---
	0-4	Cobbly silt loam	CL-ML, ML	A-4	0	15-25	80-90	70-90	60-80
	4-12	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC-GM, GM	A-2, A-4	0-10	10-40	50-70	40-60	35-55
	12-15	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC	A-2, A-6	0-10	10-45	50-75	45-70	40-65
	15-19	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
731: Stacker-----	In				Pct	Pct			
	0-18	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
	18-28	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
	28-32	Unweathered bedrock			---	---	---	---	---
	0-4 4-12	Cobbly silt loam Very gravelly clay loam, very gravelly loam, very cobbly loam	CL-ML, ML GC-GM, GM	A-4 A-2, A-4	0 0-10	15-25 10-40	80-90 50-70	70-90 40-60	60-80 35-55
732: Stacker-----	12-15	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC	A-2, A-6	0-10	10-45	50-75	45-70	40-65
	15-19	Unweathered bedrock			---	---	---	---	---
	0-18	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
	18-28	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
	28-32	Unweathered bedrock			---	---	---	---	---
Horseflat-----	0-4 4-12	Cobbly silt loam Very gravelly clay loam, very gravelly loam, very cobbly loam	CL-ML, ML GC-GM, GM	A-4 A-2, A-4	0 0-10	15-25 10-40	80-90 50-70	70-90 40-60	60-80 35-55
	12-15	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC	A-2, A-6	0-10	10-45	50-75	45-70	40-65
	15-19	Unweathered bedrock			---	---	---	---	---
	0-18	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
	18-28	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
737: Wind River-----	28-32	Unweathered bedrock			---	---	---	---	---
	0-4 4-12	Cobbly silt loam Very gravelly clay loam, very gravelly loam, very cobbly loam	CL-ML, ML GC-GM, GM	A-4 A-2, A-4	0 0-10	15-25 10-40	80-90 50-70	70-90 40-60	60-80 35-55
	12-15	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC	A-2, A-6	0-10	10-45	50-75	45-70	40-65
	15-19	Unweathered bedrock			---	---	---	---	---
	0-6 6-42	Fine sandy loam Fine sandy loam, sandy loam	SM SM	A-2, A-4 A-2, A-4	0 0	0	100 100	100 100	90-100 90-100
742: Gwin-----	42-60	Loamy fine sand, sand	SM, SP-SM	A-2	0	0	100	100	90-100
	0-5 5-11	Cobbly silt loam Very cobbly silty clay loam, very gravelly silt loam, extremely gravelly silt loam	GM, ML GC, GP-GC	A-4 A-2	0-5 0-10	15-30 20-45	70-85 20-50	70-80 15-45	65-70 10-25
	11-15	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
751: Lorena-----	In				Pct	Pct			
	0-9	Silt loam	CL-ML CL	A-4	0-5	0-5	100	95-100	85-95
	9-25	Clay loam, loam, silt loam		A-6, A-4	0	0	95-100	90-100	85-95
	25-29	Unweathered bedrock			---	---	---	---	---
Rockly-----	0-4	Very gravelly loam	GM GC, GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam		A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
752: Lorena-----	0-9	Silt loam	CL-ML CL	A-4	0-5	0-5	100	95-100	85-95
	9-25	Clay loam, loam, silt loam		A-6, A-4	0	0	95-100	90-100	85-95
	25-29	Unweathered bedrock			---	---	---	---	---
	0-4	Very gravelly loam	GM GC, GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
Rockly-----	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam		A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	ML ML	A-4	0	0	100	100	95-100
	10-60	Silt loam		A-4	0	0	100	100	95-100
756: Walla Walla----	0-10	Silt loam	ML ML	A-4	0	0	100	100	95-100
	10-60	Silt loam		A-4	0	0	100	100	95-100
758: Walla Walla----	0-10	Silt loam	ML ML	A-4	0	0	100	100	95-100
	10-60	Silt loam		A-4	0	0	100	100	95-100
761: Balake-----	0-12	Very gravelly loam	GC GC	A-2	0	0	40-60	30-50	25-40
	12-60	Very gravelly loam, very gravelly clay loam		A-2	0	0-10	40-60	30-50	25-45
762: Balake-----	0-12	Very gravelly loam	GC GC	A-2	0	0	40-60	30-50	25-40
	12-60	Very gravelly loam, very gravelly clay loam		A-2	0	0-10	40-60	30-50	25-45

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
763: Balake-----	0-12	Very gravelly loam	GC	A-2	0	0	40-60	30-50	25-40
	12-60	Very gravelly loam, very gravelly clay loam	GC	A-2	0	0-10	40-60	30-50	25-45
764: Balake-----	0-12	Very gravelly loam	GC	A-2	0	0	40-60	30-50	25-40
	12-60	Very gravelly loam, very gravelly clay loam	GC	A-2	0	0-10	40-60	30-50	25-45
765: Balake-----	0-12	Very gravelly loam	GC	A-2	0	0	40-60	30-50	25-40
	12-60	Very gravelly loam, very gravelly clay loam	GC	A-2	0	0-10	40-60	30-50	25-45
766: Gunn-----	0-12	Very gravelly loam	GC	A-2	0	0	40-60	30-50	25-40
	12-60	Very gravelly loam, very gravelly clay loam	GC	A-2	0	0-10	40-60	30-50	25-45
767: Gunn-----	0-7	Loam	CL-ML	A-4	0	0	90-100	80-100	70-95
	7-15	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100
	15-60	Clay loam, gravelly clay loam	CL, GC, SC	A-6	0	0	55-100	50-100	40-100
Galiente-----	0-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-95
	11-60	Clay loam, clay	CH, CL	A-7	0	0	100	100	95-100
767: Gunn-----	0-7	Loam	CL-ML	A-4	0	0	90-100	80-100	70-95
	7-15	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100
	15-60	Clay loam, gravelly clay loam	CL, GC, SC	A-6	0	0	55-100	50-100	40-100
Galiente-----	0-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-95
	11-60	Clay loam, clay	CH, CL	A-7	0	0	100	100	95-100
768: Gunn-----	0-7	Loam	CL-ML	A-4	0	0	90-100	80-100	70-95
	7-15	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100
	15-60	Clay loam, gravelly clay loam	CL, GC, SC	A-6	0	0	55-100	50-100	40-100
Galiente-----	0-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-95
	11-60	Clay loam, clay	CH, CL	A-7	0	0	100	100	95-100

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
799: Dalg-	0-5 5-60	Loam	ML	A-4	0	0	90-100	85-100	65-95
		Clay loam, loam, gravelly clay loam	CL	A-6	0	0	75-100	70-100	70-100
890: Stacker-	0-18 18-28 28-32	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
		Silt loam, silty clay	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
		loam, clay loam			---	---	---	---	---
891: Stacker-	0-18 18-28 28-32	Unweathered bedrock							
		Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
		Silt loam, silty clay	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
893: Fisherhill-	0-9 9-60	loam, clay loam			---	---	---	---	---
		Unweathered bedrock							
		Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
894: Fisherhill-	0-9 9-60	Silt loam, silty clay	CL	A-6	0	0	100	90-100	85-95
		loam, clay loam							
		Silt loam	CL-ML, ML	A-4	0	0	100	100	90-95
895: Fisherhill-	0-9 9-60	Silt loam, silty clay	CL	A-6	0	0	100	90-100	85-95
		loam, clay loam							
		Silt loam	CL-ML, ML	A-4	0	0	100	100	90-95
896: Stacker-	0-18 18-28 28-32	Silt loam	CL	A-6	0	0	100	90-100	85-95
		Silt loam, silty clay	CL	A-6	0	0	100	100	90-95
		loam, clay loam							
897: Stacker-	0-18 18-28 28-32	Unweathered bedrock			---	---	---	---	---
		Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
		Silt loam, silty clay	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
		loam, clay loam			---	---	---	---	---
		Unweathered bedrock							
		Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
		Silt loam, silty clay	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
		loam, clay loam			---	---	---	---	---
		Unweathered bedrock							

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
950: Rockly-----	In				Pct	Pct			
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
951: Lorena-----	0-9	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	9-25	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	25-29	Unweathered bedrock			---	---	---	---	---
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
Rockly-----	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
	0-9	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	9-25	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
952: Lorena-----	25-29	Unweathered bedrock			---	---	---	---	---
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
Rockly-----	0-9	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	9-25	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	25-29	Unweathered bedrock			---	---	---	---	---
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
Rockly-----	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-95
	10-15	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100
969: Goldendale-----	15-45	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
	45-49	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
969A: Goldendale-----	In				Pct	Pct			
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-95
	10-15	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100
	15-45	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
969B: Goldendale-----	45-49	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-95
	10-15	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100
	15-45	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
969C: Goldendale-----	45-49	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	85-95
	10-15	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100
	15-45	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
970: Oreoke-----	45-49	Unweathered bedrock			---	---	---	---	---
	0-5	Stony silt loam	CL	A-4, A-6	10-25	0-10	85-95	75-85	70-80
	5-15	Gravelly silt loam	CL	A-4, A-6	0	5-15	80-90	75-85	65-75
	15-22	Very gravelly silt loam, very gravelly loam	GC	A-2, A-6	0	10-15	50-70	30-55	30-45
Tronsen-----	22-60	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly loam	GC	A-2	0-10	15-40	35-50	25-40	20-30
	0-8	Stony ashly silt loam	CL-ML, ML, SC-SM, SM	A-4	10-15	10-15	80-90	65-80	55-75
	8-14	Very gravelly clay loam, very cobbly clay loam, very gravelly clay	GC	A-2, A-6, A-7	0-10	10-25	50-70	40-65	35-60
	14-60	Extremely gravelly clay, very cobbly clay, very cobbly clay loam, very gravelly clay loam	GC	A-2, A-7	0-10	10-40	25-60	20-55	20-45

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
971: Oreoke-----	In				Pct	Pct			
	0-5	Stony silt loam	CL	A-4, A-6	10-25	0-10	85-95	75-85	70-80
	5-15	Gravelly silt loam	CL	A-4, A-6	0	5-15	80-90	75-85	65-75
	15-22	Very gravelly silt loam,	GC	A-2, A-6	0	10-15	50-70	30-55	30-45
	22-60	Very gravelly loam, extremely gravelly clay loam, extremely gravelly loam	GC	A-2	0-10	15-40	35-50	25-40	20-30
Tronsen-----	0-8	Stony ashly silt loam	CL-ML, ML, SC-SM, SM	A-4	10-15	10-15	80-90	65-80	55-75
	8-14	Very gravelly clay loam, very cobbly clay loam, very gravelly clay	GC	A-2, A-6, A-7	0-10	10-25	50-70	40-65	35-60
	14-60	Extremely gravelly clay, very cobbly clay, very cobbly clay loam, very gravelly clay loam	GC	A-2, A-7	0-10	10-40	25-60	20-55	20-45
	0-10	Silt loam	ML	A-4	0	0	100	90-100	80-90
	10-32	Silt loam	ML	A-4	0	0-10	95-100	85-90	75-85
987: Asotin-----	32-38	Silt loam, gravelly silt loam	ML, SM, GM	A-4	0	0-10	70-95	65-90	55-80
	38-42	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	ML	A-4	0	0	100	90-100	80-90
	10-32	Silt loam	ML	A-4	0	0-10	95-100	85-90	75-85
	32-38	Silt loam, gravelly silt loam	ML, SM, GM	A-4	0	0-10	70-95	65-90	55-80
988: Asotin-----	38-42	Unweathered bedrock			---	---	---	---	---
	0-10	Silt loam	ML	A-4	0	0	100	90-100	80-90
	10-32	Silt loam	ML	A-4	0	0-10	95-100	85-90	75-85
	32-38	Silt loam, gravelly silt loam	ML, SM, GM	A-4	0	0-10	70-95	65-90	55-80
	38-42	Unweathered bedrock			---	---	---	---	---
989: Asotin-----	0-10	Silt loam	ML	A-4	0	0	100	90-100	80-90
	10-32	Silt loam	ML	A-4	0	0-10	95-100	85-90	75-85
	32-38	Silt loam, gravelly silt loam	ML, SM, GM	A-4	0	0-10	70-95	65-90	55-80
	38-42	Unweathered bedrock			---	---	---	---	---
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
990: Goldendale-----	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
990: Lorena-----	In				Pct	Pct			
	0-12	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	12-23	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-95
	23-35	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	35-39	Unweathered bedrock			---	---	---	---	---
Rockly-----	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
991: Goldendale-----	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
	0-12	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	12-23	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-95
Lorena-----	23-35	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	35-39	Unweathered bedrock			---	---	---	---	---
	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
993A: Goldendale-----	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
993B: Goldendale-----	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
993C: Goldendale-----	In				Pct	Pct			
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
993D: Goldendale-----	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
994: Lorena-----	0-12	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	12-23	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-95
	23-35	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	35-39	Unweathered bedrock			---	---	---	---	---
994A: Lorena-----	0-12	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	12-23	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-95
	23-35	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	35-39	Unweathered bedrock			---	---	---	---	---
994B: Lorena-----	0-12	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	12-23	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-95
	23-35	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	35-39	Unweathered bedrock			---	---	---	---	---
994C: Lorena-----	0-12	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	12-23	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-95
	23-35	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	35-39	Unweathered bedrock			---	---	---	---	---
994C: Lorena-----	0-12	Silt loam	CL-ML	A-4	0-5	0-5	100	95-100	85-95
	12-23	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-95
	23-35	Clay loam, loam, silt loam	CL	A-6, A-4	0	0	95-100	90-100	85-95
	35-39	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
995: Hyprairie-----	In				Pct	Pct			
	0-7	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	7-25	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	25-48	Silt loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-95	85-95	75-95
996: Hyprairie-----	48-60	Silt loam, loam, gravelly clay loam	CL	A-6	0	0	75-95	60-80	60-70
	0-7	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	7-25	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	80-95
	25-48	Silt loam, loam, clay loam	CL, CL-ML	A-4, A-6	0	0	90-95	85-95	75-95
1000: Tekison-----	48-60	Silt loam, loam, gravelly clay loam	CL	A-6	0	0	75-95	60-80	60-70
	0-11	Silt loam	ML	A-4	0	0	90-95	85-95	65-75
	11-20	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6, A-7	0-5	0-10	65-90	55-85	35-65
	20-45	Extremely cobbly clay, very cobbly clay	GC, SC	A-2, A-7	0-10	30-70	50-75	35-70	30-50
1010: Colockum-----	45-60	Very cobbly clay loam, extremely cobbly clay loam, very cobbly clay	GC, SC	A-7, A-6, A-2	0-10	30-65	50-85	35-85	35-60
	0-20	Silt loam	CL-ML	A-4	0	0-5	95-100	95-100	85-95
	20-34	Silt loam, silty clay loam	CL	A-6, A-4	0	0-5	95-100	95-100	85-95
	34-46	Silty clay loam, silt loam, gravelly loam	CL	A-6, A-4	0	0-5	95-100	70-90	60-80
Cheviot-----	46-60	Gravelly silty clay loam, very gravelly silty clay loam, very gravelly clay loam	CL, GC, SC	A-6, A-4	0	0-20	65-80	45-75	45-70
	0-7	Very stony silt loam	GC-GM, SC-SM	A-2, A-4	5-25	20-30	65-80	45-75	40-55
	7-40	Very cobbly silt loam, very cobbly loam, very gravelly silt loam	GC-GM, SC-SM	A-2, A-4	0-10	10-35	50-70	45-60	40-55
	40-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	45-55	40-70	30-65	25-65

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
1013: Tekison-----	In				Pct	Pct			
	0-8	Stony loam	ML	A-4	5-10	5-10	90-95	85-95	65-75
	8-18	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6, A-7	0-5	0-10	65-90	55-85	35-65
	18-44	Extremely cobbly clay, very cobbly clay	GC, SC	A-2, A-7	0-10	30-70	50-75	35-70	30-50
	44-60	Very cobbly clay loam, extremely cobbly clay loam, very cobbly clay	GC, SC	A-7, A-6, A-2	0-10	30-65	50-85	35-85	35-60
1014: Tekison-----	0-8	Stony loam	ML	A-4	5-10	5-10	90-95	85-95	65-75
	8-18	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6, A-7	0-5	0-10	65-90	55-85	35-65
	18-44	Extremely cobbly clay, very cobbly clay	GC, SC	A-2, A-7	0-10	30-70	50-75	35-70	30-50
	44-60	Very cobbly clay loam, extremely cobbly clay loam, very cobbly clay	GC, SC	A-7, A-6, A-2	0-10	30-65	50-85	35-85	35-60
Goldendale-----	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
1015: Rockly-----	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
Tekison-----	0-8	Stony loam	ML	A-4	5-10	5-10	90-95	85-95	65-75
	8-18	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6, A-7	0-5	0-10	65-90	55-85	35-65
	18-44	Extremely cobbly clay, very cobbly clay	GC, SC	A-2, A-7	0-10	30-70	50-75	35-70	30-50
	44-60	Very cobbly clay loam, extremely cobbly clay loam, very cobbly clay	GC, SC	A-7, A-6, A-2	0-10	30-65	50-85	35-85	35-60
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
1016: Goldendale-----	In				Pct	Pct			
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
Rockly-----	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
1017: Tronsen-----	0-8	Stony ash silt loam	CL-ML, ML, SC-SM, SM	A-4	10-15	10-15	80-90	65-80	55-75
	8-14	Very gravelly clay loam, very cobbly clay loam, very gravelly clay	GC	A-2, A-6, A-7	0-10	10-25	50-70	40-65	35-60
	14-60	Extremely gravelly clay, very cobbly clay, very cobbly clay loam, very gravelly clay loam	GC	A-2, A-7	0-10	10-40	25-60	20-55	20-45
Goldendale-----	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
Horseflat-----	0-4	Cobbly silt loam	CL-ML, ML	A-4	0	15-25	80-90	70-90	60-80
	4-12	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC-GM, GM	A-2, A-4	0-10	10-40	50-70	40-60	35-55
	12-15	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC	A-2, A-6	0-10	10-45	50-75	45-70	40-65
	15-19	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
1030: Horseflat-----	In				Pct	Pct			
	0-4	Cobbly silt loam	CL-ML, ML	A-4	0	15-25	80-90	70-90	60-80
	4-12	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC-GM, GM	A-2, A-4	0-10	10-40	50-70	40-60	35-55
	12-15	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC	A-2, A-6	0-10	10-45	50-75	45-70	40-65
	15-19	Unweathered bedrock			---	---	---	---	---
1031: Stacker-----	0-18	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-95
	18-28	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	100	90-100	90-95
	28-32	Unweathered bedrock			---	---	---	---	---
	0-9	Silt loam	CL-ML	A-4	0	0	100	100	90-100
Swalecreek-----	9-26	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	85-95
	26-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-95	75-90
	0-4	Cobbly silt loam	CL-ML, ML	A-4	0	15-25	80-90	70-90	60-80
	4-12	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC-GM, GM	A-2, A-4	0-10	10-40	50-70	40-60	35-55
Horseflat-----	12-15	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC	A-2, A-6	0-10	10-45	50-75	45-70	40-65
	15-19	Unweathered bedrock			---	---	---	---	---
	0-6	Very stony sandy loam	SC-SM, GC-GM, GP-GC	A-1, A-2, A-4	15-20	15-20	50-80	40-70	40-65
	6-12	Very gravelly loam, very stony loam	GC-GM, CL-ML	A-2, A-4	5-20	5-15	40-70	30-60	30-60
1032: Goodhoe-----	12-22	Very cobbly loam, very gravelly loam, extremely cobbly loam	GC, GC-GM	A-6, A-2, A-4	0-15	5-35	45-60	35-60	25-55
	22-29	Extremely stony loam, extremely gravelly loam, very gravelly silt loam	GC, GC-GM, CL	A-6, A-4, A-2	5-40	5-40	30-70	25-65	25-60
	29-33	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
1032: Swalecreek-----	In				Pct	Pct			
	0-9	Silt loam	CL-ML	A-4	0	0	100	100	90-100
	9-26	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	85-95
	26-60	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	85-95	75-90
Horseflat-----	0-4	Cobbly silt loam	CL-ML, ML	A-4	0	15-25	80-90	70-90	60-80
	4-12	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC-GM, GM	A-2, A-4	0-10	10-40	50-70	40-60	35-55
	12-15	Extremely gravelly loam, extremely cobbly loam, very cobbly clay loam, very cobbly loam	GC	A-2, A-6	0-10	10-45	50-75	45-70	40-65
	15-19	Unweathered bedrock			---	---	---	---	---
1042: Cheviot-----	0-7	Very stony silt loam	GC-GM, SC-SM	A-2, A-4	5-25	20-30	65-80	45-75	40-55
	7-40	Very cobbly silt loam, very cobbly loam, very gravelly silt loam	GC-GM, SC-SM	A-2, A-4	0-10	10-35	50-70	45-60	40-55
	40-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	45-55	40-70	30-65	25-65
	0-8	Stony ashly silt loam	CL-ML, ML, SC-SM, SM	A-4	10-15	10-15	80-90	65-80	55-75
Tronsen-----	8-14	Very gravelly clay loam, very cobbly clay loam, very gravelly clay	GC	A-2, A-6, A-7	0-10	10-25	50-70	40-65	35-60
	14-60	Extremely gravelly clay, very cobbly clay, very cobbly clay loam, very gravelly clay loam	GC	A-2, A-7	0-10	10-40	25-60	20-55	20-45
1075: Walla Walla-----	0-11	Silt loam	ML	A-4	0	0	100	100	95-100
	11-50	Silt loam	ML	A-4	0	0	100	100	95-100
	50-60	Silt loam, silt	ML	A-4	0	0	100	100	95-100

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
1075: Goodnoe-----	In				Pct	Pct			
	0-6	Very stony sandy loam	SC-SM, GC-GM, GP-GC	A-1, A-2, A-4	15-20	15-20	50-80	40-70	40-65
	6-12	Very gravelly loam, very stony loam	GC-GM, CL-ML	A-2, A-4	5-20	5-15	40-70	30-60	30-60
	12-22	Very cobbly loam, very gravelly loam, extremely cobbly loam	GC, GC-GM	A-6, A-2, A-4	0-15	5-35	45-60	35-60	25-55
	22-29	Extremely stony loam, extremely gravelly loam, very gravelly silt loam	GC, GC-GM, CL	A-6, A-4, A-2	5-40	5-40	30-70	25-65	25-60
1093: Goldendale-----	29-33	Unweathered bedrock			---	---	---	---	---
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
	0-16	Silt loam	CL-ML	A-4	0	0	100	95-100	85-95
Lorena-----	16-31	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-95
	31-36	Clay loam, loam, silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-95
	36-40	Unweathered bedrock			---	---	---	---	---
	0-5	Stony silt loam	CL	A-4, A-6	10-25	0-10	85-95	75-85	70-80
	5-15	Gravelly silt loam	CL	A-4, A-6	0	5-15	80-90	75-85	65-75
1096: Oreoke-----	15-22	Very gravelly silt loam, very gravelly loam	GC	A-2, A-6	0	10-15	50-70	30-55	30-45
	22-60	Very gravelly clay loam, extremely gravelly clay loam, extremely gravelly loam	GC	A-2	0-10	15-40	35-50	25-40	20-30
	0-14	Silt loam	CL-ML	A-4	0	0	100	100	90-95
	14-20	Loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100
	20-60	Silt loam, clay loam, silty clay loam	CL	A-6	0	0	95-100	90-100	85-95
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---

Table 5.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
1097: Tekison-----	In				Pct	Pct			
	0-8	Stony loam	ML	A-4	5-10	5-10	90-95	85-95	65-75
	8-18	Gravelly loam, gravelly clay loam	SC, GC	A-2, A-6, A-7	0-5	0-10	65-90	55-85	35-65
	18-44	Extremely cobbly clay, very cobbly clay	GC, SC	A-2, A-7	0-10	30-70	50-75	35-70	30-50
	44-60	Very cobbly clay loam, extremely cobbly clay loam, very cobbly clay	GC, SC	A-7, A-6, A-2	0-10	30-65	50-85	35-85	35-60
Lorena-----	0-16	Silt loam	CL-ML	A-4	0	0	100	95-100	85-95
	16-31	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-95
	31-36	Clay loam, loam, silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-95
	36-40	Unweathered bedrock			---	---	---	---	---
Rockly-----	0-4	Very gravelly loam	GM	A-1, A-2, A-4	0	5-15	55-65	30-60	25-50
	4-10	Very cobbly clay loam, extremely gravelly loam, extremely cobbly clay loam	GC, GM	A-1, A-2, A-6	0-5	10-55	30-65	25-60	25-50
	10-14	Unweathered bedrock			---	---	---	---	---
2961: Renslow-----	0-13	Silt loam	ML	A-4	0	0	100	100	95-100
	13-20	Silt loam	CL-ML	A-4	0	0	100	100	95-100
	20-45	Silt loam	CL-ML	A-4	0	0	90-100	85-100	85-100
	45-49	Unweathered bedrock			---	---	---	---	---
2971: Renslow-----	0-13	Silt loam	ML	A-4	0	0	100	100	95-100
	13-20	Silt loam	CL-ML	A-4	0	0	100	100	95-100
	20-45	Silt loam	CL-ML	A-4	0	0	90-100	85-100	85-100
	45-49	Unweathered bedrock			---	---	---	---	---
3061: Ritzville-----	0-13	Silt loam	ML	A-4	0	0	100	100	95-100
	13-40	Silt loam	ML	A-4	0	0	100	100	95-100
	40-53	Silt loam	ML	A-4	0	0	100	100	95-100
	53-57	Unweathered bedrock			---	---	---	---	---

Table 6.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group erodibility index" apply only to the surface layer. Absence of an entry indicates that data were

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
1B: Satus-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-4	7-12	0.65-0.85	0.6-2	0.20-0.23	0.0-2.9	3.0-5.0	.20	.3
	4-9	10-18	0.85-1.20	0.6-20	0.15-0.19	0.0-2.9	1.0-3.0	.24	.3
	9-42	10-18	1.20-1.45	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.3
	42-60	10-18	1.25-1.45	0.6-2	0.08-0.10	0.0-2.9	0.0-0.5	.15	.3
2C: Satus-----	0-4	7-12	0.65-0.85	0.6-2	0.20-0.23	0.0-2.9	3.0-5.0	.20	.3
	4-9	10-18	0.85-1.20	0.6-20	0.15-0.19	0.0-2.9	1.0-3.0	.24	.3
	9-42	10-18	1.20-1.45	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.3
	42-60	10-18	1.25-1.45	0.6-2	0.08-0.10	0.0-2.9	0.0-0.5	.15	.3
3C: Pird-----	0-9	7-15	0.65-0.85	0.6-2	0.14-0.17	0.0-2.9	3.0-5.0	.24	.3
	9-41	7-15	0.80-0.90	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.3
	41-60	7-15	0.85-1.10	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5	.10	.3
4B: Grandpon-----	0-20	7-15	0.80-0.90	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.32	.3
	20-30	7-15	0.80-0.90	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.43	.4
	30-60	15-20	1.25-1.55	0.6-2	0.09-0.12	0.0-2.9	0.0-0.5	.10	.3
6B: Berson-----	0-10	15-20	0.80-0.90	0.6-2	0.18-0.20	0.0-2.9	2.0-4.0	.20	.3
	10-32	15-20	1.10-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.3
	32-57	18-25	1.20-1.55	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.3
	57-67	---	---	---	---	---	---	---	---
7B: Bocker-----	0-2	18-22	1.15-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.3
	2-10	20-24	1.30-1.50	0.6-2	0.09-0.11	0.0-2.9	1.0-2.0	.10	.3
	10-14	---	---	---	---	---	---	---	---
Klicko-----	0-7	10-18	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.37	.3
	7-17	10-18	1.20-1.40	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.37	.3
	17-31	10-18	1.20-1.40	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.37	.3
	31-39	15-20	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.32	.3
	39-43	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
11B: Xerands-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-8	10-20	0.65-0.85	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.32	.3
	8-36	27-35	0.65-0.85	0.6-6	0.14-0.17	0.0-2.9	1.0-2.0	.24	.3
11C: Xerands-----	36-60	27-35	0.65-1.10	0.6-6	0.14-0.19	0.0-2.9	0.5-1.0	.24	.3
	0-8	10-20	0.65-0.85	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.32	.3
	8-36	27-35	0.65-0.85	0.6-6	0.14-0.17	0.0-2.9	1.0-2.0	.24	.3
12: Legall-----	36-60	27-35	0.65-1.10	0.6-6	0.14-0.19	0.0-2.9	0.5-1.0	.24	.3
	0-8	10-15	1.10-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.20	.2
	8-40	15-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.15	.2
12A: Tekison-----	40-60	18-35	1.25-1.50	0.6-2	0.09-0.11	3.0-5.9	0.5-1.0	.10	.3
	0-8	15-20	1.15-1.35	0.6-2	0.13-0.16	0.0-2.9	1.0-3.0	.28	.3
	8-18	20-35	1.25-1.45	0.6-2	0.15-0.17	3.0-5.9	1.0-2.0	.24	.3
Rock outcrop-----	18-44	40-55	1.15-1.30	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.10	.2
	44-60	35-45	1.25-1.45	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.10	.3
	0-60	---	---	---	---	---	---	---	---
12B: Maydol-----	0-5	15-20	1.10-1.25	0.6-2	0.12-0.14	0.0-2.9	2.0-4.0	.24	.3
	5-44	18-25	1.20-1.50	0.6-2	0.12-0.14	0.0-2.9	1.0-2.0	.28	.3
	44-60	18-25	1.30-1.60	0.6-2	0.10-0.12	0.0-2.9	0.5-1.0	.15	.3
12C: Legall-----	0-8	10-15	1.10-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.20	.2
	8-40	15-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.15	.2
	40-60	18-35	1.25-1.50	0.6-2	0.09-0.11	3.0-5.9	0.5-1.0	.10	.3
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---	---	---
12D: Lyville-----	0-7	15-20	1.10-1.30	0.6-2	0.13-0.15	0.0-2.9	2.0-4.0	.20	.2
	7-13	18-20	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.2
	13-27	20-25	1.30-1.45	0.6-2	0.12-0.14	0.0-2.9	0.0-1.0	.20	.3
27-44	20-25	1.40-1.60	0.6-2	0.6-2	0.09-0.11	0.0-2.9	0.0-1.0	.10	.3
	44-48	---	---	---	---	---	0.0-0.5	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
12E: Rock outcrop-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-60	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---
Legall-----	0-8	10-15	1.10-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.20	.28
	8-40	15-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.15	.28
	40-60	18-35	1.25-1.50	0.6-2	0.09-0.11	3.0-5.9	0.5-1.0	.10	.32
12F: Lyville-----	0-7	15-20	1.10-1.30	0.6-2	0.13-0.15	0.0-2.9	2.0-4.0	.20	.28
	7-13	18-20	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.28
	13-27	20-25	1.30-1.45	0.6-2	0.12-0.14	0.0-2.9	0.0-1.0	.20	.32
Rock outcrop-----	27-44	20-25	1.40-1.60	0.6-2	0.09-0.11	0.0-2.9	0.0-1.0	.10	.32
	44-48	---	---	---	---	---	0.0-0.5	---	---
	0-60	---	---	---	---	---	---	---	---
13B: Itat-----	0-3	15-20	1.15-1.35	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.20	.32
	3-21	15-20	1.20-1.40	0.6-2	0.10-0.15	0.0-2.9	1.0-2.0	.20	.32
	21-31	15-20	1.25-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.17	.37
13C: Itat-----	31-60	20-25	1.35-1.60	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.37
	0-4	15-20	1.15-1.35	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.20	.32
	4-16	15-20	1.20-1.40	0.6-2	0.10-0.15	0.0-2.9	1.0-2.0	.20	.32
14A: Rockly-----	16-28	15-20	1.25-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.17	.37
	28-60	20-25	1.35-1.60	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.37
	0-5	18-27	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	2.0-4.0	.10	.37
14B: Rockly-----	5-11	20-30	1.40-1.50	0.6-2	0.06-0.11	0.0-2.9	1.0-2.0	.10	.37
	11-15	---	---	---	---	---	---	---	---
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.37
15: Rockly-----	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.37
	10-14	---	---	---	---	---	---	---	---
	0-5	18-27	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	2.0-4.0	.10	.37
Rock outcrop-----	5-11	20-30	1.40-1.50	0.2-0.6	0.06-0.11	0.0-2.9	1.0-2.0	.10	.37
	11-15	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kf	Kf
16: Sauter-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-6	15-18	1.10-1.30	0.6-2	0.18-0.22	0.0-2.9	2.0-5.0	.20	.20
	6-19 19-60	15-20 20-35	1.20-1.35 1.25-1.40	0.6-2 0.6-2	0.16-0.20 0.15-0.19	0.0-2.9 3.0-5.9	1.0-2.0 0.5-1.0	.17 .15	.33 .33
16B: Suta-----	0-7	15-20	1.15-1.25	0.6-2	0.13-0.16	0.0-2.9	2.0-4.0	.20	.33
	7-42 42-46	18-23 ---	1.20-1.35 ---	0.6-2 ---	0.10-0.14 ---	0.0-2.9 ---	0.5-1.0 ---	.15 ---	.33 ---
16C: Sauter-----	0-8	15-18	1.10-1.30	0.6-2	0.18-0.22	0.0-2.9	2.0-5.0	.20	.20
	8-17 17-60	15-20 20-35	1.20-1.35 1.25-1.40	0.6-2 0.6-2	0.16-0.20 0.15-0.19	0.0-2.9 3.0-5.9	1.0-2.0 0.5-1.0	.17 .15	.33 .33
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---	---	---
16E: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---	---	---
Sauter-----	0-8	15-18	1.10-1.30	0.6-2	0.18-0.22	0.0-2.9	2.0-5.0	.20	.20
	8-17 17-60	15-20 20-35	1.20-1.35 1.25-1.40	0.6-2 0.6-2	0.16-0.20 0.15-0.19	0.0-2.9 3.0-5.9	1.0-2.0 0.5-1.0	.17 .15	.33 .33
17A: Presh-----	0-6	10-20	1.40-1.55	0.6-2	0.13-0.16	0.0-2.9	2.0-4.0	.28	.33
	6-18 18-60	10-20 18-25	1.45-1.60 1.50-1.60	0.6-2 0.6-2	0.10-0.13 0.11-0.14	0.0-2.9 3.0-5.9	1.0-2.0 0.0-1.0	.28 .32	.33 .33
17B: Presh-----	0-5	10-20	1.40-1.55	0.6-2	0.13-0.15	0.0-2.9	2.0-4.0	.28	.33
	5-13 13-44 44-60	10-20 18-25 18-25	1.45-1.60 1.50-1.60 1.50-1.60	0.6-2 0.6-2 0.6-2	0.10-0.13 0.11-0.14 0.08-0.12	0.0-2.9 3.0-5.9 3.0-5.9	1.0-2.0 0.0-1.0 0.0-1.0	.28 .32 .28	.33 .33 .33
17D: Quiden-----	0-4	7-15	1.15-1.35	0.6-2	0.13-0.15	0.0-2.9	2.0-5.0	.28	.33
	4-14 14-60	7-15 18-25	1.25-1.40 1.30-1.50	0.6-2 0.6-2	0.13-0.16 0.13-0.16	0.0-2.9 0.0-2.9	1.0-2.0 0.5-1.0	.32 .28	.33 .33

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
18A: Kaiders-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-6	10-15	0.90-1.20	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.20	.3
	6-20	10-20	1.00-1.30	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.20	.3
	20-42	18-30	1.25-1.45	0.6-2	0.12-0.15	0.0-2.9	0.5-1.0	.15	.3
18B: Kaiders-----	42-60	10-23	1.25-1.50	0.6-2	0.07-0.14	0.0-2.9	0.0-0.5	.10	.3
	0-6	10-15	0.90-1.20	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.20	.3
	6-20	10-20	1.00-1.30	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.20	.3
	20-42	18-30	1.25-1.45	0.6-2	0.12-0.15	0.0-2.9	0.5-1.0	.15	.3
18C: Kaiders-----	42-60	10-23	1.25-1.50	0.6-2	0.07-0.14	0.0-2.9	0.0-0.5	.10	.3
	0-6	10-15	0.90-1.20	0.6-2	0.15-0.18	0.0-2.9	1.0-3.0	.20	.3
	6-20	10-20	1.00-1.30	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.20	.3
	20-42	18-30	1.25-1.45	0.6-2	0.12-0.15	0.0-2.9	0.5-1.0	.15	.3
19: Kiakus-----	42-60	10-23	1.25-1.50	0.6-2	0.07-0.14	0.0-2.9	0.0-0.5	.10	.3
	0-11	15-27	1.15-1.40	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.3
	11-28	18-35	1.25-1.50	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.28	.2
	28-33	27-35	1.35-1.60	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.28	.3
Munset-----	33-37	---	---	---	---	---	---	---	---
	0-2	15-22	1.15-1.25	0.6-2	0.18-0.20	0.0-2.9	2.0-4.0	.28	.3
	2-16	27-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.3
	16-22	50-60	1.20-1.45	0.0002-0.01	0.12-0.14	6.0-8.9	0.5-1.0	.28	.2
Wahoo-----	22-25	20-35	1.30-1.65	0.2-0.6	0.05-0.07	3.0-5.9	0.5-1.0	.10	.3
	25-35	---	---	---	---	---	---	---	---
	0-5	27-30	1.15-1.40	0.2-0.6	0.15-0.17	3.0-5.9	3.0-5.0	.20	.3
	5-12	30-35	1.30-1.60	0.2-0.6	0.11-0.14	3.0-5.9	1.0-3.0	.10	.3
20: Nook-----	12-22	---	---	---	---	---	---	---	---
	0-10	18-23	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	4.0-6.0	.37	.3
	10-25	18-23	1.20-1.35	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.37	.3
	25-60	18-25	1.30-1.45	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.37	.3
20A: Threecreeks-----	0-24	15-18	1.25-1.35	0.6-2	0.18-0.20	0.0-2.9	2.0-4.0	.32	.3
	24-41	15-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	1.0-4.0	.37	.3
	41-60	5-10	1.40-1.55	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.17	.2

Table 6.---Physical Properties of the Soils---Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
21: Rock outcrop-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-60	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---
22: Fluventic Haploxerolls	0-12	5-10	1.10-1.25	0.6-6	0.10-0.12	0.0-2.9	1.0-2.0	.37	.3
	12-26	0-10	1.25-1.55	6-20	0.05-0.08	0.0-2.9	1.0-2.0	.28	.3
	26-40	0-10	1.10-1.35	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.32	.3
	40-60	0-5	1.20-1.55	2-6	0.04-0.06	0.0-2.9	0.5-1.0	.20	.3
Riverwash-----	0-60	---	---	---	---	---	---	---	---
23: Gunn-----	0-6	15-20	1.10-1.30	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.37	.3
	6-18	22-32	1.15-1.50	0.2-0.6	0.17-0.19	3.0-5.9	0.0-2.0	.37	.3
	18-60	28-35	1.30-1.65	0.2-0.6	0.16-0.18	3.0-5.9	0.0-2.0	.32	.3
23A: Gunn-----	0-5	15-20	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.3
	5-33	22-32	1.20-1.55	0.2-0.6	0.17-0.19	3.0-5.9	1.0-3.0	.28	.2
	33-60	28-35	1.30-1.65	0.2-0.6	0.10-0.15	3.0-5.9	0.5-1.0	.20	.3
23B: Gunn-----	0-15	15-20	1.10-1.30	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.37	.3
	15-32	22-32	1.15-1.50	0.2-0.6	0.17-0.19	3.0-5.9	0.0-2.0	.37	.3
	32-60	28-35	1.30-1.65	0.2-0.6	0.16-0.18	3.0-5.9	0.0-2.0	.32	.3
23C: Gunn-----	0-5	15-20	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.3
	5-33	22-32	1.20-1.55	0.2-0.6	0.17-0.19	3.0-5.9	1.0-3.0	.28	.2
	33-60	28-35	1.30-1.65	0.2-0.6	0.10-0.15	3.0-5.9	0.5-1.0	.20	.3
24: Rockly-----	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
	10-14	---	---	---	---	---	---	---	---
Itat-----	0-3	15-20	1.15-1.35	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.20	.3
	3-20	15-20	1.20-1.40	0.6-2	0.10-0.15	0.0-2.9	1.0-2.0	.20	.3
	20-30	15-20	1.25-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.17	.3
	30-60	20-25	1.35-1.60	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.3

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
26C: Mazdale-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-6	10-18	0.70-0.95	0.6-2	0.18-0.20	0.0-2.9	2.0-4.0	.32	.3
	6-12	10-18	0.85-1.00	0.6-2	0.15-0.19	0.0-2.9	1.0-3.0	.32	.3
	12-28	16-20	1.25-1.45	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.24	.4
	28-60	18-25	1.30-1.60	2-6	0.08-0.11	0.0-2.9	0.5-1.0	.24	.4
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---
26E: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---
Mazdale-----	0-6	10-18	0.70-0.95	0.6-2	0.18-0.20	0.0-2.9	2.0-4.0	.32	.3
	6-12	10-18	0.85-1.00	0.6-2	0.15-0.19	0.0-2.9	1.0-3.0	.32	.3
	12-28	16-20	1.25-1.45	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.24	.4
	28-60	18-25	1.30-1.60	2-6	0.08-0.11	0.0-2.9	0.5-1.0	.24	.4
	0-5	5-18	0.65-0.90	2-6	0.18-0.21	0.0-2.9	2.0-4.0	.15	.2
27B: Yedlick-----	5-13	5-18	0.65-0.90	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.15	.2
	13-60	5-20	1.30-1.55	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.10	.3
	0-10	7-15	0.80-0.90	0.6-2	0.20-0.24	0.0-2.9	2.0-4.0	.37	.3
	10-17	7-15	1.20-1.30	0.6-2	0.16-0.20	0.0-2.9	1.0-2.0	.37	.3
	17-33	18-33	1.25-1.40	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.32	.3
28: Trelk-----	33-60	10-25	1.30-1.55	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.28	.3
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
	10-14	---	---	---	---	---	---	---	---
	0-21	15-27	1.15-1.40	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.3
30: Rockly-----	21-38	18-35	1.25-1.50	0.2-0.6	0.19-0.21	3.0-5.9	1.0-3.0	.28	.2
	38-42	---	---	---	---	---	---	---	---
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
	10-14	---	---	---	---	---	---	---	---

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
36C: Jebe-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-5	15-18	1.10-1.30	0.6-2	0.18-0.21	0.0-2.9	3.0-5.0	.24	.3
	5-31	15-20	1.10-1.35	0.6-2	0.16-0.19	0.0-2.9	2.0-4.0	.20	.3
	31-60	20-30	1.25-1.50	0.6-2	0.11-0.15	3.0-5.9	0.5-1.0	.17	.4
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---	---	---
39A: Hyprairie-----	0-7	13-18	1.10-1.30	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.37	.3
	7-25	13-18	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.43	.4
	25-48	18-30	1.30-1.50	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.37	.3
	48-60	18-35	1.30-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.37	.3
39B: Hyprairie-----	0-7	13-18	1.10-1.30	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.37	.3
	7-25	13-18	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.43	.4
	25-48	18-30	1.30-1.50	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.37	.3
	48-60	18-35	1.30-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.37	.3
39C: Hyprairie-----	0-16	13-18	1.10-1.30	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.37	.3
	16-23	13-18	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.43	.4
	23-40	18-30	1.30-1.50	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.37	.3
	40-60	18-35	1.30-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.37	.3
39D: Hyprairie-----	0-16	13-18	1.10-1.30	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.37	.3
	16-23	13-18	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.43	.4
	23-40	18-30	1.30-1.50	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.37	.3
	40-60	18-35	1.30-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.37	.3
41: Oroke-----	0-5	15-20	1.20-1.35	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.20	.3
	5-15	15-20	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.28	.3
	15-22	18-25	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.15	.3
	22-60	25-35	1.30-1.50	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.10	.3
Legall-----	0-8	10-15	1.10-1.30	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.20	.2
	8-40	15-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.15	.2
	40-60	18-35	1.25-1.50	0.6-2	0.09-0.11	3.0-5.9	0.5-1.0	.10	.3

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
42: Oreoke-----									
	0-5	15-20	1.20-1.35	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.20	.32
	5-15	15-20	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.28	.32
	15-22	18-25	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.15	.37
	22-60	25-35	1.30-1.50	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.10	.32
Beezee-----									
	0-10	15-18	1.10-1.30	0.6-2	0.16-0.19	0.0-2.9	3.0-5.0	.20	.28
	10-18	15-20	1.20-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.17	.28
	18-33	20-35	1.25-1.50	0.6-2	0.13-0.17	3.0-5.9	0.5-1.0	.17	.32
	33-60	20-35	1.25-1.50	0.6-2	0.17-0.20	3.0-5.9	0.5-1.0	.20	.32
43: Oreoke-----									
	0-5	15-20	1.20-1.35	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.20	.32
	5-15	15-20	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.28	.32
	15-22	18-25	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.15	.37
	22-60	25-35	1.30-1.50	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.10	.32
Colockum-----									
	0-20	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43
	20-34	22-35	1.20-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.43	.43
	34-46	22-35	1.25-1.45	0.6-2	0.14-0.17	3.0-5.9	0.5-1.0	.28	.37
	46-60	27-35	1.25-1.50	0.6-2	0.11-0.14	3.0-5.9	0.5-1.0	.15	.32
49A: Kiakus-----									
	0-16	15-27	1.15-1.40	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32
	16-29	18-35	1.25-1.50	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.28	.28
	29-38	27-35	1.35-1.60	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.28	.32
	38-42	---	---	---	---	---	---	---	---
49B: Kiakus-----									
	0-16	15-27	1.15-1.40	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32
	16-29	18-35	1.25-1.50	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.28	.28
	29-38	27-35	1.35-1.60	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.28	.32
	38-42	---	---	---	---	---	---	---	---
49C: Kiakus-----									
	0-16	15-27	1.15-1.40	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32
	16-29	18-35	1.25-1.50	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.28	.28
	29-38	27-35	1.35-1.60	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.28	.32
	38-42	---	---	---	---	---	---	---	---
49D: Kiakus-----									
	0-16	15-27	1.15-1.40	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.32
	16-29	18-35	1.25-1.50	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.28	.28
	29-38	27-35	1.35-1.60	0.2-0.6	0.16-0.18	3.0-5.9	0.5-1.0	.28	.32
	38-42	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
49E: Kiakus-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-16	15-27	1.15-1.40	0.6-2	0.19-0.21	0.0-2.9	3.0-5.0	.32	.3
	16-29	18-35	1.25-1.50	0.6-2	0.19-0.21	3.0-5.9	1.0-3.0	.28	.2
	29-38 38-42	27-35 ---	1.35-1.60 ---	0.2-0.6 ---	0.16-0.18 ---	3.0-5.9 ---	0.5-1.0 ---	.28 ---	.3 ---
Rockly-----	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
	10-14	---	---	---	---	---	---	---	---
55: Firoke-----	0-6	2-10	0.60-0.90	0.6-2	0.13-0.15	0.0-2.9	3.0-6.0	.15	.2
	6-19	2-10	0.85-0.90	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.20	.3
	19-60	2-10	0.85-0.90	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.10	.3
55A: Kingtain-----	0-2	7-15	0.65-0.85	0.6-2	0.19-0.22	0.0-2.9	2.0-7.0	.20	.3
	2-10	7-15	0.85-0.90	0.6-2	0.15-0.20	0.0-2.9	1.0-2.0	.24	.3
	10-49	7-15	0.85-0.90	0.6-2	0.10-0.15	0.0-2.9	0.0-1.0	.17	.3
	49-60	10-20	1.10-1.40	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.3
57: Firoke-----	0-6	2-10	0.60-0.90	0.6-2	0.16-0.18	0.0-2.9	3.0-6.0	.20	.2
	6-19	2-10	0.85-0.90	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.20	.3
	19-60	2-10	0.85-0.90	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.10	.3
59B: Bercumb-----	0-4	7-12	0.75-0.90	2-6	0.14-0.18	0.0-2.9	1.0-4.0	.20	.3
	4-10	7-12	0.85-0.90	0.6-2	0.14-0.18	0.0-2.9	1.0-3.0	.20	.3
	10-29	7-12	1.00-1.30	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.3
	29-53	7-12	1.00-1.30	0.6-2	0.10-0.16	0.0-2.9	1.0-2.0	.17	.3
	53-60	7-12	1.25-1.55	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.10	.3
59C: Bercumb-----	0-3	7-12	0.75-0.90	2-6	0.14-0.18	0.0-2.9	1.0-4.0	.20	.3
	3-11	7-12	0.85-0.90	0.6-2	0.14-0.18	0.0-2.9	1.0-3.0	.20	.3
	11-30	7-12	1.00-1.30	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.3
	30-60	7-12	1.00-1.30	0.6-2	0.10-0.16	0.0-2.9	1.0-2.0	.17	.3
59D: Bercumb-----	0-6	7-12	0.75-0.90	2-6	0.14-0.18	0.0-2.9	1.0-4.0	.20	.3
	6-12	7-12	0.85-0.90	0.6-2	0.14-0.18	0.0-2.9	1.0-3.0	.20	.3
	12-28	7-12	1.00-1.30	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.20	.3
	28-60	7-12	1.00-1.30	0.6-2	0.10-0.16	0.0-2.9	1.0-2.0	.17	.3

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
69A: Goldendale-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-10	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	10-15	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	15-45	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.3
	45-49	---	---	---	---	---	---	---	---
69B: Goldendale-----	0-10	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	10-15	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	15-45	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.3
	45-49	---	---	---	---	---	---	---	---
69C: Goldendale-----	0-10	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	10-15	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	15-45	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.3
	45-49	---	---	---	---	---	---	---	---
72: Aqualfs-----	0-6	10-25	1.10-1.35	0.6-2	0.16-0.18	0.0-2.9	3.0-5.0	.43	.4
	6-13	27-35	1.20-1.40	0.2-0.6	0.18-0.21	3.0-5.9	3.0-5.0	.37	.3
	13-27	25-35	1.30-1.50	0.2-0.6	0.18-0.21	3.0-5.9	1.0-3.0	.37	.3
	27-60	25-35	1.30-1.50	0.2-0.6	0.16-0.18	3.0-5.9	1.0-2.0	.37	.3
73A: Dalig-----	0-15	15-25	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.3
	15-60	25-35	1.25-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.0-1.0	.28	.2
73B: Dalig-----	0-15	15-25	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.3
	15-60	25-35	1.25-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.0-1.0	.28	.2
73C: Dalig-----	0-15	15-25	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.3
	15-60	25-35	1.25-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.0-1.0	.28	.2
74A: Tigit-----	0-6	7-15	1.10-1.25	0.6-2	0.18-0.21	0.0-2.9	2.0-5.0	.32	.3
	6-15	7-15	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.28	.3
	15-39	18-25	1.20-1.50	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.24	.3
	39-49	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
74B: Tigit-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-6	7-15	1.10-1.25	0.6-2	0.18-0.21	0.0-2.9	2.0-5.0	.32	.3
	6-15	7-15	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.28	.3
	15-39	18-25	1.20-1.50	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.24	.3
74C: Tigit-----	39-49	---	---	---	---	---	---	---	---
	0-6	7-15	1.10-1.25	0.6-2	0.18-0.21	0.0-2.9	2.0-5.0	.32	.3
	6-15	7-15	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.28	.3
	15-39	18-25	1.20-1.50	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.24	.3
76: Underwood-----	39-49	---	---	---	---	---	---	---	---
	0-7	18-25	1.10-1.30	0.6-2	0.16-0.18	0.0-2.9	2.0-5.0	.37	.3
	7-37	25-35	1.25-1.45	0.2-0.6	0.19-0.21	3.0-5.9	1.0-3.0	.28	.2
	37-60	20-30	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.32	.3
76A: Underwood-----	0-7	18-25	1.10-1.30	0.6-2	0.16-0.18	0.0-2.9	2.0-5.0	.37	.3
	7-37	25-35	1.25-1.45	0.2-0.6	0.19-0.21	3.0-5.9	1.0-3.0	.28	.2
	37-60	20-30	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.32	.3
76B: Underwood-----	0-7	18-25	1.10-1.30	0.6-2	0.16-0.18	0.0-2.9	2.0-5.0	.37	.3
	7-37	25-35	1.25-1.45	0.2-0.6	0.19-0.21	3.0-5.9	1.0-3.0	.28	.2
	37-60	20-30	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.32	.3
76C: Underwood-----	0-14	18-25	1.10-1.30	0.6-2	0.13-0.18	0.0-2.9	2.0-5.0	.24	.3
	14-60	25-35	1.25-1.45	0.2-0.6	0.19-0.21	3.0-5.9	1.0-3.0	.28	.2
77: McGowan-----	0-10	10-15	1.10-1.30	0.6-2	0.16-0.19	0.0-2.9	2.0-5.0	.32	.3
	10-15	18-33	1.25-1.45	0.6-2	0.16-0.19	0.0-2.9	0.5-2.0	.32	.3
	15-42	20-33	1.25-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.28	.2
	42-60	20-28	1.25-1.45	0.6-2	0.14-0.17	0.0-2.9	0.0-0.5	.28	.3
77A: McGowan-----	0-10	10-15	1.10-1.30	0.6-2	0.16-0.19	0.0-2.9	2.0-5.0	.32	.3
	10-15	18-33	1.25-1.45	0.6-2	0.16-0.19	0.0-2.9	0.5-2.0	.32	.3
	15-42	20-33	1.25-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.28	.2
	42-60	20-28	1.25-1.45	0.6-2	0.14-0.17	0.0-2.9	0.0-0.5	.28	.3

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
80: Troutlake-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-10	15-20	0.80-0.90	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.37	.3
	10-21	20-25	0.80-0.90	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.37	.3
	21-60	25-30	1.30-1.60	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.28	.2
81: Sugarbowl-----	0-4	7-15	0.60-0.85	0.6-2	0.16-0.19	0.0-2.9	2.0-4.0	.37	.3
	4-41	7-15	0.60-0.85	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.32	.3
	41-60	7-15	0.60-0.85	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.24	.2
82B: Kingtain-----	0-15	7-15	0.80-0.90	0.6-2	0.15-0.20	0.0-2.9	3.0-5.0	.20	.3
	15-49	7-15	0.80-0.90	0.6-2	0.10-0.15	0.0-2.9	2.0-3.0	.15	.3
	49-60	10-20	1.10-1.40	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.3
82D: Kingtain-----	0-16	7-15	0.65-0.85	2-6	0.17-0.22	0.0-2.9	3.0-5.0	.15	.3
	16-49	7-15	0.85-0.90	0.6-2	0.15-0.20	0.0-2.9	1.0-2.0	.24	.3
	49-60	10-20	1.10-1.40	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.3
82E: Kingtain-----	0-12	7-15	0.65-0.85	0.6-2	0.19-0.22	0.0-2.9	2.0-7.0	.20	.3
	12-49	7-15	0.85-0.90	0.6-2	0.15-0.20	0.0-2.9	1.0-2.0	.24	.3
	49-60	10-20	1.10-1.40	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.3
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
83: Volash-----	0-12	10-18	0.60-0.85	0.6-2	0.19-0.23	0.0-2.9	3.0-5.0	.32	.3
	12-25	10-18	0.60-0.85	0.6-2	0.19-0.23	0.0-2.9	1.0-3.0	.32	.3
	25-48	10-18	0.80-0.90	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.32	.3
	48-52	---	---	---	---	---	---	---	---
84: Trouter-----	0-4	7-18	0.65-0.85	0.6-2	0.20-0.24	0.0-2.9	3.0-5.0	.32	.3
	4-29	7-18	0.65-0.85	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.32	.3
	29-33	---	---	---	---	---	---	---	---
84A: Trouter-----	0-4	7-18	0.65-0.85	0.6-2	0.20-0.24	0.0-2.9	3.0-5.0	.32	.3
	4-29	7-18	0.65-0.85	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.32	.3
	29-33	---	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
86A: Chemawa-----	0-26	7-18	0.80-0.90	0.6-2	0.16-0.19	0.0-2.9	2.0-3.0	.43	.43
	26-60	10-18	0.80-0.90	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.49	.49
86B: Chemawa-----	0-26	7-18	0.80-0.90	0.6-2	0.16-0.19	0.0-2.9	2.0-3.0	.43	.43
	26-60	10-18	0.80-0.90	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.49	.49
86C: Chemawa-----	0-26	7-18	0.80-0.90	0.6-2	0.16-0.19	0.0-2.9	2.0-3.0	.43	.43
	26-60	10-18	0.80-0.90	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.49	.49
86D: Chemawa-----	0-26	7-18	0.80-0.90	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.28	.43
	26-60	10-18	0.80-0.90	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.49
87A: Eagreek-----	0-19	15-20	1.15-1.30	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.32	.32
	19-60	18-27	1.25-1.45	0.6-2	0.14-0.16	0.0-2.9	0.5-1.5	.37	.37
88A: Timberhead-----	0-28	10-18	0.80-0.90	0.6-2	0.09-0.14	0.0-2.9	2.0-3.0	.20	.32
	28-42	10-18	0.80-0.90	0.6-2	0.09-0.12	0.0-2.9	0.0-2.0	.24	.32
	42-60	10-18	0.95-1.45	0.6-2	0.16-0.18	0.0-2.9	0.0-1.0	.43	.43
88B: Timberhead-----	0-28	10-18	0.80-0.90	0.6-2	0.09-0.14	0.0-2.9	2.0-3.0	.20	.32
	28-42	10-18	0.80-0.90	0.6-2	0.09-0.12	0.0-2.9	0.0-2.0	.24	.32
	42-60	10-18	0.95-1.45	0.6-2	0.16-0.18	0.0-2.9	0.0-1.0	.43	.43
89: McElroy-----	0-11	15-25	0.85-1.00	0.6-2	0.12-0.14	0.0-2.9	2.0-3.0	.20	.28
	11-23	18-27	1.00-1.10	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.20	.28
	23-60	18-27	1.00-1.10	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.28
89B: McElroy-----	0-11	15-25	0.85-1.00	0.6-2	0.12-0.14	0.0-2.9	2.0-3.0	.20	.28
	11-23	18-27	1.00-1.10	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.20	.28
	23-60	18-27	1.00-1.10	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.28
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
90: Hood-----	0-15	15-20	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.37	.37
	15-60	18-25	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.2-2.0	.55	.55

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
90A: Hood-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-15	15-20	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.37	.3
	15-60	18-25	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.2-2.0	.55	.5
90B: Hood-----	0-10	15-20	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.37	.3
	10-60	18-25	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.2-2.0	.55	.5
90C: Hood-----	0-7	15-20	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-5.0	.37	.3
	7-60	18-25	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.2-2.0	.55	.5
92: Husum-----	0-10	10-15	0.65-0.85	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.3
	10-28	10-15	0.65-0.85	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.20	.3
	28-60	0-2	1.10-1.35	6-20	0.03-0.07	0.0-2.9	0.5-1.0	.05	.2
92A: Husum-----	0-15	10-15	0.65-0.85	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.3
	15-36	10-15	0.65-0.85	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.20	.3
	36-60	0-2	1.10-1.35	6-20	0.03-0.07	0.0-2.9	0.5-1.0	.05	.2
92B: Husum-----	0-10	10-15	0.65-0.85	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.3
	10-32	10-15	0.65-0.85	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.20	.3
	32-60	0-2	1.10-1.35	6-20	0.03-0.07	0.0-2.9	0.5-1.0	.05	.2
93: Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3
93A: Goldendale-----	0-14	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3
93B: Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3
93C: Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist		Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
			bulk	density					Kw	Kf
95A: Konert-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct	Pct		
	0-17 17-60	20-27 35-45	1.10-1.30 1.20-1.35	0.2-0.6 0.06-0.2	0.17-0.20 0.15-0.18	3.0-5.9 6.0-8.9	2.0-4.0 1.0-2.0	.37 .32	.37 .32	.33 .33
96: Blockhouse-----	0-12 12-29 29-60	15-25 20-35 25-35	1.10-1.30 1.15-1.45 1.20-1.55	0.6-2 0.6-2 0.2-0.6	0.19-0.21 0.18-0.21 0.16-0.21	0.0-2.9 0.0-2.9 3.0-5.9	3.0-5.0 1.0-3.0 0.0-1.0	.37 .43 .37	.37 .43 .37	.33 .43 .33
	0-2 2-16 16-22 22-25 25-29	15-22 27-35 50-60 20-35 ---	1.15-1.25 1.20-1.40 1.20-1.45 1.30-1.65 ---	0.6-2 0.2-0.6 0.0002-0.01 0.2-0.6 ---	0.18-0.20 0.19-0.21 0.12-0.14 0.05-0.07 ---	0.0-2.9 3.0-5.9 6.0-8.9 3.0-5.9 ---	2.0-4.0 1.0-2.0 0.5-1.0 0.5-1.0 ---	.28 .32 .28 .10 ---	.28 .32 .28 .10 ---	.33 .33 .22 .33 ---
97A: Setnum-----	0-10 10-17 17-31 31-39 39-43	15-18 18-25 35-45 18-35 ---	1.35-1.55 1.40-1.60 1.45-1.60 1.40-1.60 ---	0.6-2 0.2-0.6 0.06-0.2 0.2-0.6 ---	0.21-0.24 0.16-0.20 0.12-0.15 0.16-0.20 ---	0.0-2.9 3.0-5.9 6.0-8.9 3.0-5.9 ---	2.0-4.0 1.0-2.0 0.5-1.0 0.5-1.0 ---	.32 .32 .32 .32 ---	.32 .32 .32 .32 ---	.33 .33 .33 .33 ---
97B: Blockhouse-----	0-12 12-29 29-60	15-25 20-35 25-35	1.10-1.30 1.15-1.45 1.20-1.55	0.6-2 0.6-2 0.2-0.6	0.19-0.21 0.18-0.21 0.16-0.21	0.0-2.9 0.0-2.9 3.0-5.9	3.0-5.0 1.0-3.0 0.0-1.0	.37 .43 .37	.37 .43 .37	.33 .43 .33
	0-2 2-16 16-22 22-25 25-29	15-22 27-35 50-60 20-35 ---	1.15-1.25 1.20-1.40 1.20-1.45 1.30-1.65 ---	0.6-2 0.2-0.6 0.0002-0.01 0.2-0.6 ---	0.18-0.20 0.19-0.21 0.12-0.14 0.05-0.07 ---	0.0-2.9 3.0-5.9 6.0-8.9 3.0-5.9 ---	2.0-4.0 1.0-2.0 0.5-1.0 0.5-1.0 ---	.28 .32 .28 .10 ---	.28 .32 .28 .10 ---	.33 .33 .22 .33 ---
99: Dallesport-----	0-11 11-20 20-25 25-60	5-10 5-10 2-8 0-2	1.20-1.40 1.30-1.50 1.40-1.60 1.50-1.65	2-6 2-6 6-20 20-101	0.11-0.15 0.11-0.15 0.06-0.09 0.01-0.03	0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.0-1.0 0.0-1.0 0.0-1.0	.37 .15 .05 .02	.37 .15 .05 .02	.33 .33 .33 .22
	0-3 3-11 11-19 19-24 24-60	5-10 5-10 5-10 2-8 0-2	1.20-1.40 1.20-1.40 1.30-1.50 1.40-1.60 1.50-1.65	2-6 2-6 2-6 6-20 20-101	0.10-0.13 0.10-0.13 0.11-0.15 0.06-0.09 0.01-0.03	0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 1.0-2.0 0.0-1.0 0.0-1.0 0.0-1.0	.28 .28 .15 .05 .02	.28 .28 .15 .05 .02	.33 .33 .33 .33 .22

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
101: Dalliesport-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-3	5-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.28	.32
	3-11	5-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.28	.32
	11-19	5-10	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.0-1.0	.15	.37
	19-24	2-8	1.40-1.60	6-20	0.06-0.09	0.0-2.9	0.0-1.0	.05	.32
102: Dalliesport-----	24-60	0-2	1.50-1.65	20-101	0.01-0.03	0.0-2.9	0.0-1.0	.02	.28
	0-10	5-10	1.20-1.40	2-6	0.11-0.15	0.0-2.9	1.0-2.0	.37	.37
	10-20	5-10	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.0-1.0	.15	.37
	20-24	2-8	1.40-1.60	6-20	0.06-0.09	0.0-2.9	0.0-1.0	.05	.32
	24-60	0-2	1.50-1.65	20-101	0.01-0.03	0.0-2.9	0.0-1.0	.02	.28
103: Dalliesport-----	0-3	5-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.28	.32
	3-11	5-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.28	.32
	11-19	5-10	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.0-1.0	.15	.37
	19-24	2-8	1.40-1.60	6-20	0.06-0.09	0.0-2.9	0.0-1.0	.05	.32
	24-60	0-2	1.50-1.65	20-101	0.01-0.03	0.0-2.9	0.0-1.0	.02	.28
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
104: Dalliesport-----	0-3	5-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.28	.32
	3-11	5-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.28	.32
	11-19	5-10	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.0-1.0	.15	.37
	19-24	2-8	1.40-1.60	6-20	0.06-0.09	0.0-2.9	0.0-1.0	.05	.32
	24-60	0-2	1.50-1.65	20-101	0.01-0.03	0.0-2.9	0.0-1.0	.02	.28
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
105: Ewall-----	0-3	5-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.28	.32
	3-11	5-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	1.0-2.0	.28	.32
	11-19	5-10	1.30-1.50	2-6	0.11-0.15	0.0-2.9	0.0-1.0	.15	.37
	19-24	2-8	1.40-1.60	6-20	0.06-0.09	0.0-2.9	0.0-1.0	.05	.32
	24-60	0-2	1.50-1.65	20-101	0.01-0.03	0.0-2.9	0.0-1.0	.02	.28
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
105: Ewall-----	0-14	3-8	1.25-1.45	6-20	0.07-0.09	0.0-2.9	0.5-1.0	.10	.10
	14-60	0-5	1.45-1.60	20-101	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10
106: Ewall-----	0-14	3-8	1.25-1.45	6-20	0.07-0.09	0.0-2.9	0.5-1.0	.10	.10
	14-60	0-5	1.45-1.60	20-101	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10
107: Ewall-----	0-13	3-8	1.25-1.45	6-20	0.07-0.09	0.0-2.9	0.5-1.0	.10	.10
	13-60	0-5	1.45-1.60	20-101	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10
108: Ewall-----	0-13	3-8	1.25-1.45	6-20	0.07-0.09	0.0-2.9	0.5-1.0	.10	.10
	13-60	0-5	1.45-1.60	20-101	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kw	Kf
108: Rock outcrop-----	In 0-60	Pct ---	g/cc ---	In/hr ---	In/in ---	Pct ---	Pct ---	---	---
109: Ewall-----	0-11 11-60	3-8 0-5	1.25-1.45 1.45-1.60	6-20 20-101	0.07-0.09 0.05-0.07	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.10 .10	.1 .1
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
113B: Tekison-----	0-8 8-18 18-44 44-60	15-20 20-35 40-55 35-45	1.15-1.35 1.25-1.45 1.15-1.30 1.25-1.45	0.6-2 0.6-2 0.06-0.2 0.2-0.6	0.13-0.16 0.15-0.17 0.07-0.10 0.10-0.12	0.0-2.9 3.0-5.9 3.0-5.9 0.0-2.9	1.0-3.0 1.0-2.0 0.5-1.0 0.0-0.5	.28 .24 .10 .10	.3 .3 .2 .3
113C: Tekison-----	0-8 8-18 18-44 44-60	15-20 20-35 40-55 35-45	1.15-1.35 1.25-1.45 1.15-1.30 1.25-1.45	0.6-2 0.6-2 0.06-0.2 0.2-0.6	0.13-0.16 0.15-0.17 0.07-0.10 0.10-0.12	0.0-2.9 3.0-5.9 3.0-5.9 0.0-2.9	1.0-3.0 1.0-2.0 0.5-1.0 0.0-0.5	.28 .24 .10 .10	.3 .3 .2 .3
115: Aguolls-----	0-9 9-26 26-32 32-45 45-49	10-25 15-27 15-27 27-35 ---	1.20-1.35 1.30-1.40 1.30-1.45 1.35-1.50 ---	0.6-2 0.6-2 0.6-2 0.2-0.6 ---	0.16-0.18 0.12-0.16 0.11-0.14 0.09-0.12 0.00-0.00	0.0-2.9 0.0-2.9 0.0-2.9 3.0-5.9 ---	3.0-5.0 2.0-3.0 1.0-2.0 1.0-2.0 ---	.37 .32 .28 .20 ---	.3 .3 .3 .3 ---
116: Aguolls-----	0-9 9-26 26-32 32-45 45-49	10-25 15-27 15-27 27-35 ---	1.20-1.35 1.30-1.40 1.30-1.45 1.35-1.50 ---	0.6-2 0.6-2 0.6-2 0.2-0.6 ---	0.16-0.18 0.12-0.16 0.11-0.14 0.09-0.12 0.00-0.00	0.0-2.9 0.0-2.9 0.0-2.9 3.0-5.9 ---	3.0-5.0 2.0-3.0 1.0-2.0 1.0-2.0 ---	.37 .32 .28 .20 ---	.3 .3 .3 .3 ---
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
120: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
Haploxerolls-----	0-4 4-15 15-19	5-15 5-10 ---	1.20-1.40 1.20-1.50 ---	0.6-2 2-6 ---	0.13-0.15 0.08-0.12 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 1.0-2.0 ---	.32 .15 ---	.3 .3 ---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
121: Rock outcrop-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-60	---	---	---	---	---	---	---	---
	0-13 13-60	5-15 5-15	1.30-1.40 1.45-1.55	0.6-2 0.6-20	0.08-0.11 0.01-0.11	0.0-2.9 0.0-2.9	1.0-3.0 0.0-1.0	.17 .10	.28 .28
122: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
	0-13 13-60	5-15 5-15	1.30-1.40 1.45-1.55	0.6-2 0.6-20	0.08-0.11 0.01-0.11	0.0-2.9 0.0-2.9	1.0-3.0 0.0-1.0	.17 .10	.28 .28
	0-16 16-60	15-25 35-55	1.00-1.15 1.35-1.40	0.6-2 0.06-0.2	0.17-0.21 0.14-0.18	0.0-2.9 6.0-8.9	2.0-4.0 0.0-1.0	.37 .20	.37 .20
125: Scooteney-----	0-6	5-10	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55
	6-22	5-10	1.20-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.49	.55
	22-33	5-10	1.30-1.45	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.28	.55
	33-60	0-5	1.30-1.55	2-6	0.05-0.09	0.0-2.9	0.0-0.5	.15	.49
127: Scooteney-----	0-6	5-10	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.24	.55
	6-22	5-10	1.20-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.49	.55
	22-33	5-10	1.30-1.45	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.28	.49
	33-60	0-5	1.30-1.55	2-6	0.05-0.09	0.0-2.9	0.0-0.5	.15	.49
130: Oxy-----	0-7	10-18	1.30-1.50	0.6-2	0.20-0.23	0.0-2.9	2.0-3.0	.43	.43
	7-21	18-30	1.35-1.65	0.2-0.6	0.12-0.18	0.0-2.9	0.5-1.0	.28	.43
	21-25	---	---	---	---	---	---	---	---
131: Onyx-----	0-8	10-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.43	.43
	8-21	10-18	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43
	21-49	10-18	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43
	49-60	12-17	1.30-1.45	0.6-2	0.08-0.14	0.0-2.9	0.5-1.0	.15	.32
132: Esquatzel-----	0-17	2-6	1.10-1.30	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.55	.55
	17-60	5-15	1.20-1.40	0.6-2	0.19-0.23	0.0-2.9	0.0-1.0	.55	.55

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
136: Bickleton-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-19	10-15	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.43	.4
	19-30	18-25	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.43	.4
	30-44	18-30	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.43	.4
	44-52	27-35	1.25-1.45	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.10	.4
	52-56	---	---	---	---	---	---	---	---
137: Bickleton-----	0-19	10-15	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.43	.4
	19-30	18-25	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.43	.4
	30-44	18-30	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.43	.4
	44-52	27-35	1.25-1.45	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.10	.4
	52-56	---	---	---	---	---	---	---	---
140: Broadax-----	0-17	10-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	2.0-3.0	.43	.4
	17-38	20-35	1.50-1.60	0.6-2	0.17-0.20	3.0-5.9	1.0-2.0	.43	.4
	38-60	15-25	1.35-1.60	0.6-2	0.17-0.19	0.0-2.9	0.5-1.0	.49	.4
141: Broadax-----	0-17	10-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	2.0-3.0	.43	.4
	17-38	20-35	1.50-1.60	0.6-2	0.17-0.20	3.0-5.9	1.0-2.0	.43	.4
	38-60	15-25	1.35-1.60	0.6-2	0.17-0.19	0.0-2.9	0.5-1.0	.49	.4
150: Morrow-----	0-16	18-25	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.37	.3
	16-31	24-35	1.30-1.40	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.43	.4
	31-38	18-30	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.43	.4
	38-42	---	---	---	---	---	---	---	---
151: Morrow-----	0-16	18-25	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.37	.3
	16-31	24-35	1.30-1.40	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.43	.4
	31-38	18-30	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.43	.4
	38-42	---	---	---	---	---	---	---	---
155: Morrow-----	0-16	18-25	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.37	.3
	16-31	24-35	1.30-1.40	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.43	.4
	31-38	18-30	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.43	.4
	38-42	---	---	---	---	---	---	---	---
Bakeoven-----	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.3
	4-10	18-30	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.3
	10-14	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
159B: Panak-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-7	10-15	1.10-1.45	0.6-2	0.15-0.18	0.0-2.9	2.0-5.0	.32	.32
	7-19	15-23	1.35-1.60	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.37	.37
	19-42	18-30	1.40-1.65	0.6-2	0.14-0.17	3.0-5.9	0.0-1.0	.32	.37
159C: Panak-----	42-60	18-30	1.40-1.65	0.6-2	0.12-0.15	3.0-5.9	0.0-0.5	.32	.37
	0-8	10-15	1.10-1.45	0.6-2	0.14-0.16	0.0-2.9	2.0-5.0	.20	.32
	8-26	15-23	1.35-1.60	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.37	.37
	26-42	18-30	1.40-1.65	0.6-2	0.14-0.17	3.0-5.9	0.0-1.0	.32	.37
159D: Panak-----	42-60	18-30	1.40-1.65	0.6-2	0.12-0.15	3.0-5.9	0.0-0.5	.32	.37
	0-8	10-15	1.10-1.45	0.6-2	0.14-0.16	0.0-2.9	2.0-5.0	.20	.32
	8-26	15-23	1.35-1.60	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.37	.37
	26-42	18-30	1.40-1.65	0.6-2	0.14-0.17	3.0-5.9	0.0-1.0	.32	.37
161: Van Nostern-----	42-60	18-30	1.40-1.65	0.6-2	0.12-0.15	3.0-5.9	0.0-0.5	.32	.37
	0-8	10-15	1.10-1.45	0.6-2	0.14-0.16	0.0-2.9	2.0-5.0	.20	.32
	8-26	15-23	1.35-1.60	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.37	.37
	26-42	18-30	1.40-1.65	0.6-2	0.14-0.17	3.0-5.9	0.0-1.0	.32	.37
181: Umapine-----	42-60	18-30	1.40-1.65	0.6-2	0.12-0.15	3.0-5.9	0.0-0.5	.32	.37
	0-17	10-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.43	.43
	17-35	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49
	35-39	---	---	---	---	---	---	---	---
187: Cleman-----	0-20	10-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	20-60	10-20	1.30-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.64	.64
	0-10	5-10	1.15-1.35	2-6	0.14-0.18	0.0-2.9	1.0-2.0	.49	.49
	10-43	5-10	1.30-1.60	2-6	0.13-0.15	0.0-2.9	0.0-1.0	.55	.55
190: Weirman-----	43-60	2-10	1.30-1.60	2-6	0.10-0.13	0.0-2.9	0.0-1.0	.28	.37
	0-4	5-8	1.20-1.40	2-6	0.10-0.14	0.0-2.9	1.0-2.0	.37	.37
	4-10	2-5	1.50-1.70	20-101	0.01-0.02	0.0-2.9	0.5-1.0	.05	.28
	10-60	0-2	1.50-1.70	20-101	0.01-0.02	0.0-2.9	0.0-0.5	.05	.28
193: Swalecreek-----	0-18	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
	18-31	18-25	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43
	31-60	18-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.43
	0-18	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
194: Swalecreek-----	18-31	18-25	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43
	31-60	18-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.43
	0-18	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
	18-31	18-25	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
195: Swalecreek-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-18	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.4
	18-31	18-25	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.4
	31-60	18-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.4
Niva-----	0-12	18-25	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.28	.2
	12-17	27-40	1.30-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.20	.2
	17-27	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
196: Mondovi-----	0-6	10-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.37	.3
	6-60	10-18	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-2.0	.37	.3
200: Malaga-----	0-3	5-15	1.20-1.40	0.6-2	0.11-0.13	0.0-2.9	0.5-1.0	.20	.3
	3-17	5-15	1.30-1.50	0.6-2	0.10-0.14	0.0-2.9	0.5-1.0	.20	.3
	17-21	5-15	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.3
	21-60	0-5	1.30-1.60	20-101	0.03-0.07	0.0-2.9	0.0-0.5	.05	.2
211: Hezel-----	0-5	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.3
	5-17	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.2
	17-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.4
212: Hezel-----	0-5	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.3
	5-17	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.2
	17-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.4
213: Hezel-----	0-5	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.3
	5-17	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.2
	17-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.4
225: Kiona-----	0-9	5-15	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.24	.4
	9-25	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-1.0	.20	.4
	25-60	5-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.3
226: Kiona-----	0-9	7-15	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	0.5-1.0	.32	.5
	9-25	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.20	.5
	25-60	5-15	1.30-1.50	0.6-2	0.07-0.09	0.0-2.9	0.0-0.5	.15	.5
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils---Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
227: Cheviot-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-7	15-25	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.10	.43
	7-40	15-25	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43
	40-60	15-25	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49
228: Borfin-----	0-7	27-35	1.30-1.50	0.2-0.6	0.08-0.11	3.0-5.9	2.0-3.0	.24	.28
	7-18	40-60	1.35-1.45	0.06-0.2	0.04-0.07	6.0-8.9	1.0-2.0	.20	.24
	18-24	35-45	1.35-1.55	0.06-0.2	0.08-0.12	3.0-5.9	0.5-1.0	.20	.28
	24-34	---	---	0.0015-0.2	0.00-0.00	---	---	---	---
	34-38	---	---	---	---	---	---	---	---
229: Cheviot-----	0-7	15-25	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.10	.43
	7-40	15-25	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43
	40-60	15-25	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49
Wipple-----	0-6	27-35	1.10-1.30	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.10	.24
	6-15	27-35	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28
	15-23	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-1.0	.05	.20
	23-60	32-45	1.25-1.55	0.2-0.6	0.06-0.12	3.0-5.9	0.0-0.5	.05	.28
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
230: Cheviot-----	0-7	15-25	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.10	.43
	7-40	15-25	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43
	40-60	15-25	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49
Ralls-----	0-5	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.49
	5-17	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.49
	17-36	18-35	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49
	36-47	16-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.0-0.5	.20	.49
	47-60	16-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.55
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
240: Niva-----	0-7	18-25	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.28	.28
	7-17	27-40	1.30-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.20	.20
	17-21	---	---	0.0015-0.06	0.00-0.00	---	0.0-0.0	---	---
	21-31	---	---	0.0015-0.06	0.00-0.00	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
241: Niva-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-10	18-25	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.28	.28
	10-19	27-40	1.30-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.20	.20
	19-30	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
242: Niva-----	0-10	18-25	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.28	.28
	10-16	27-40	1.30-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.20	.20
	16-26	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
250: Van Nostern-----	0-11	10-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.43	.43
	11-34	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49
	34-38	---	---	---	---	---	---	---	---
251: Van Nostern-----	0-11	10-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.43	.43
	11-34	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49
	34-38	---	---	---	---	---	---	---	---
255: Van Nostern-----	0-11	10-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.43	.43
	11-34	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49
	34-38	---	---	---	---	---	---	---	---
Bakeoven-----	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37
	4-10	18-30	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32
	10-14	---	---	---	---	---	---	---	---
266: Van Nostern-----	0-11	10-15	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.43	.43
	11-34	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49
	34-38	---	---	---	---	---	---	---	---
Bakeoven-----	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37
	4-10	18-30	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32
	10-14	---	---	---	---	---	---	---	---
274: Prosser-----	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55
	4-20	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64
	20-32	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55
	32-36	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
275: Prosser-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55
	4-20	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64
	20-32	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55
277: Prosser-----	32-36	---	---	---	---	---	---	---	---
	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55
	4-20	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64
	20-32	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55
Bakeoven-----	32-36	---	---	---	---	---	---	---	---
	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37
	4-10	18-30	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32
	10-14	---	---	---	---	---	---	---	---
280: Quincy-----	0-27	0-5	1.45-1.65	6-20	0.09-0.12	0.0-2.9	0.5-1.0	.32	.32
	27-60	0-5	1.50-1.70	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.28	.28
281: Quincy-----	0-27	0-5	1.45-1.65	6-20	0.09-0.12	0.0-2.9	0.5-1.0	.32	.32
	27-60	0-5	1.50-1.70	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.28	.28
285: Quinton-----	0-23	0-5	1.50-1.70	6-20	0.06-0.07	0.0-2.9	0.0-0.8	.17	.17
	23-30	0-5	1.40-1.70	6-20	0.05-0.08	0.0-2.9	0.0-0.5	.10	.17
	30-34	---	---	---	---	---	---	---	---
290: Koehler-----	0-15	0-5	1.40-1.60	6-20	0.09-0.13	0.0-2.9	0.5-1.0	.28	.28
	15-32	0-5	1.40-1.60	6-20	0.08-0.10	0.0-2.9	0.0-0.5	.28	.28
	32-36	0-5	1.45-1.75	6-20	0.02-0.06	0.0-2.9	0.0-0.5	.05	.28
	36-60	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
296: Swalecreek-----	0-14	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
	14-60	18-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.43
297: Swalecreek-----	0-14	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
	14-60	18-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.43
298: Swalecreek-----	0-16	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
	16-60	18-35	1.40-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.43

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kw	Kf
298: Rockly-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10 10-14	20-30 ---	1.30-1.40 ---	0.6-2 ---	0.06-0.11 ---	0.0-2.9 ---	0.0-0.5 ---	.10 ---	.3 ---
299: Swalecreek-----	0-16 16-60	15-20 18-35	1.25-1.45 1.40-1.60	0.6-2 0.2-0.6	0.19-0.21 0.19-0.21	0.0-2.9 3.0-5.9	2.0-4.0 0.5-1.0	.43 .37	.4 .4
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10 10-14	20-30 ---	1.30-1.40 ---	0.6-2 ---	0.06-0.11 ---	0.0-2.9 ---	0.0-0.5 ---	.10 ---	.3 ---
304: Ritzville-----	0-15 15-39 39-60	5-10 5-10 5-10	1.10-1.30 1.20-1.40 1.30-1.45	0.6-2 0.6-2 0.6-2	0.19-0.21 0.19-0.21 0.19-0.21	0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.5-1.0 0.0-0.5	.49 .49 .55	.4 .4 .5
	0-15	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	15-39 39-60	5-10 5-10	1.20-1.40 1.30-1.45	0.6-2 0.6-2	0.19-0.21 0.19-0.21	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.49 .55	.4 .5
305: Ritzville-----	0-15 15-39 39-60	5-10 5-10 5-10	1.10-1.30 1.20-1.40 1.30-1.45	0.6-2 0.6-2 0.6-2	0.19-0.21 0.19-0.21 0.19-0.21	0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.5-1.0 0.0-0.5	.49 .49 .55	.4 .4 .5
	0-15	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	15-39 39-60	5-10 5-10	1.20-1.40 1.30-1.45	0.6-2 0.6-2	0.19-0.21 0.19-0.21	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.49 .55	.4 .5
306: Ritzville-----	0-7 7-37 37-60	5-10 5-10 5-10	1.10-1.30 1.20-1.40 1.30-1.45	0.6-2 0.6-2 0.6-2	0.19-0.21 0.19-0.21 0.19-0.21	0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.5-1.0 0.0-0.5	.49 .49 .55	.4 .4 .5
	0-7	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	7-37 37-60	5-10 5-10	1.20-1.40 1.30-1.45	0.6-2 0.6-2	0.19-0.21 0.19-0.21	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.49 .55	.4 .5
308: Ralls-----	0-5 5-17 17-36	6-10 6-10 18-35	1.15-1.30 1.15-1.30 1.25-1.45	0.6-2 0.6-2 0.2-0.6	0.13-0.15 0.13-0.15 0.12-0.14	0.0-2.9 0.0-2.9 3.0-5.9	1.0-2.0 1.0-2.0 0.5-1.0	.28 .28 .20	.4 .4 .4
	16-30 36-47 47-60	18-30 16-30 16-30	1.25-1.45 1.25-1.45 1.25-1.45	0.2-0.6 0.2-0.6 0.6-2	0.12-0.14 0.12-0.14 0.12-0.14	3.0-5.9 3.0-5.9 3.0-5.9	0.0-0.5 0.0-0.5 0.0-0.5	.20 .20 .15	.4 .4 .5
	0-3 3-6 6-10	15-20 15-20 27-40	1.25-1.40 1.25-1.40 1.35-1.60	0.6-2 0.6-2 0.2-0.6	0.14-0.16 0.12-0.14 0.08-0.10	0.0-2.9 0.0-2.9 3.0-5.9	1.0-2.0 1.0-2.0 1.0-2.0	.24 .20 .05	.4 .4 .3
317: Reilloc-----	10-13 13-17	35-45 ---	1.35-1.60 ---	0.2-0.6 ---	0.04-0.06 ---	6.0-8.9 ---	1.0-2.0 ---	.05 ---	.3 ---
	0-3 3-6 6-10	15-20 15-20 27-40	1.25-1.40 1.25-1.40 1.35-1.60	0.6-2 0.6-2 0.2-0.6	0.14-0.16 0.12-0.14 0.08-0.10	0.0-2.9 0.0-2.9 3.0-5.9	1.0-2.0 1.0-2.0 1.0-2.0	.24 .20 .05	.4 .4 .3
	10-13 13-17	35-45 ---	1.35-1.60 ---	0.2-0.6 ---	0.04-0.06 ---	6.0-8.9 ---	1.0-2.0 ---	.05 ---	.3 ---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
350: Willis-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-7	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	7-15	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.5
	15-33	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
	33-43	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
351: Willis-----	0-7	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	7-15	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.5
	15-33	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
	33-43	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
352: Willis-----	0-7	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	7-15	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.5
	15-33	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
	33-43	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
353: Willis-----	0-7	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	7-15	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.5
	15-33	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
	33-43	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
360: Selah-----	0-7	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	7-15	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.5
	15-33	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
	33-43	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
360: Selah-----	0-11	15-18	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	11-27	25-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.5-2.0	.37	.3
	27-39	27-35	1.30-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.2
	39-50	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
	50-54	---	---	---	---	---	---	---	---
361: Selah-----	0-11	15-18	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	11-27	25-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.5-2.0	.37	.3
	27-39	27-35	1.30-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.2
	39-50	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
	50-54	---	---	---	---	---	---	---	---
362: Selah-----	0-11	15-18	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	11-27	25-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.5-2.0	.37	.3
	27-39	27-35	1.30-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.2
	39-50	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
	50-54	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
365: Selah-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-11	15-18	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	11-27	25-35	1.30-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.5-2.0	.37	.37
	27-39	27-35	1.30-1.50	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.28
	39-50	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
	50-54	---	---	---	---	---	---	---	---
Bakeoven-----	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37
	4-10	18-30	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32
	10-14	---	---	---	---	---	---	---	---
374: Thiessen-----	0-6	23-27	1.15-1.35	0.6-2	0.09-0.13	3.0-5.9	2.0-3.0	.10	.43
	6-23	35-45	1.25-1.45	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28
	23-30	35-45	1.20-1.35	0.2-0.6	0.06-0.10	3.0-5.9	1.0-2.0	.10	.28
	30-34	---	---	---	---	---	---	---	---
375: Lickskillet-----	0-8	15-25	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.20	.37
	8-18	20-30	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.32
	18-22	---	---	---	---	---	---	---	---
376: Lickskillet-----	0-8	15-25	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.20	.37
	8-18	20-30	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.32
	18-22	---	---	---	---	---	---	---	---
377: Lickskillet-----	0-8	15-25	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.20	.37
	8-18	20-30	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.32
	18-22	---	---	---	---	---	---	---	---
378: Starbuck-----	0-3	5-12	1.15-1.35	0.6-2	0.11-0.13	0.0-2.9	1.0-2.0	.28	.49
	3-13	5-15	1.30-1.50	0.6-2	0.12-0.20	0.0-2.9	0.5-1.0	.32	.55
	13-17	---	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
379: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---	---	---

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
379: Cheviot-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-7	15-25	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.10	.4
	7-40	15-25	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.4
	40-60	15-25	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.4
380: Cheviot-----	0-7	15-25	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.10	.4
	7-40	15-25	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.4
	40-60	15-25	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.4
Licksillet-----	0-8	15-25	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.20	.3
	8-18	20-30	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.3
	18-22	---	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
381: Ralls-----	0-5	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.4
	5-17	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.4
	17-36	18-35	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.4
	36-47	16-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.0-0.5	.20	.4
	47-60	16-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.5
Cheviot-----	0-7	15-25	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.10	.4
	7-40	15-25	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.4
	40-60	15-25	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.4
Licksillet-----	0-8	15-25	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.20	.3
	8-18	20-30	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.3
	18-22	---	---	---	---	---	---	---	---
390: Renslow-----	0-13	5-10	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	13-20	10-18	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-2.0	.49	.4
	20-60	10-13	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.4
Ralls-----	0-5	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.4
	5-17	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.4
	17-36	18-35	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.4
	36-47	16-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.0-0.5	.20	.4
	47-60	16-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.5
Wipple-----	0-7	27-35	1.10-1.30	0.6-2	0.14-0.19	0.0-2.9	1.0-2.0	.15	.2
	7-12	27-35	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.2
	12-29	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-1.0	.05	.2
	29-60	32-45	1.25-1.55	0.2-0.6	0.06-0.12	3.0-5.9	0.0-0.5	.05	.2

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
391: Broadax-----									
	0-17	10-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	2.0-3.0	.43	.43
	17-38	20-35	1.50-1.60	0.6-2	0.17-0.20	3.0-5.9	1.0-2.0	.43	.43
	38-60	15-25	1.35-1.60	0.6-2	0.17-0.19	0.0-2.9	0.5-1.0	.49	.49
Colockum-----									
	0-20	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43
	20-34	22-35	1.20-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.43	.43
	34-46	22-35	1.25-1.45	0.6-2	0.14-0.17	3.0-5.9	0.5-1.0	.28	.37
Tronsen-----									
	46-60	27-35	1.25-1.50	0.6-2	0.11-0.14	3.0-5.9	0.5-1.0	.15	.32
	0-8	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.43
	8-14	35-50	1.20-1.40	0.6-2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.37
394: Cheviot-----				0.06-0.2	0.05-0.10	6.0-8.9	0.0-0.5	.10	.37
	14-60	35-50	1.30-1.50						
	0-7	15-25	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.10	.43
	7-40	15-25	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43
Ralls-----									
	40-60	15-25	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49
	0-5	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.49
	5-17	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.49
Wipple-----									
	17-36	18-35	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49
	36-47	16-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.0-0.5	.20	.49
	47-60	16-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.55
395: Cheviot-----									
	0-6	27-35	1.10-1.30	0.6-2	0.14-0.19	0.0-2.9	1.0-2.0	.15	.24
	6-15	27-35	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28
	15-23	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-1.0	.05	.20
Ralls-----									
	23-60	32-45	1.25-1.55	0.2-0.6	0.06-0.12	3.0-5.9	0.0-0.5	.05	.28
	0-7	15-25	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-3.0	.10	.43
	7-40	15-25	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.0-1.0	.10	.43
Wipple-----									
	40-60	15-25	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49
	0-5	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.49
	5-17	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.49
Wipple-----									
	17-36	18-35	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49
	36-47	16-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.0-0.5	.20	.49
	47-60	16-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.55
Wipple-----									
	0-6	27-35	1.10-1.30	0.6-2	0.14-0.19	0.0-2.9	1.0-2.0	.15	.24
	6-15	27-35	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.28
	15-23	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-1.0	.05	.20
Wipple-----									
	23-60	32-45	1.25-1.55	0.2-0.6	0.06-0.12	3.0-5.9	0.0-0.5	.05	.28

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
396: Renslow-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-13	5-10	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	13-20	10-18	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-2.0	.49	.4
	20-60	10-13	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.4
	0-5	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.4
	5-17	6-10	1.15-1.30	0.6-2	0.13-0.15	0.0-2.9	1.0-2.0	.28	.4
	17-36	18-35	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.4
	36-47	16-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.0-0.5	.20	.4
	47-60	16-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.5
	0-7	27-35	1.10-1.30	0.6-2	0.14-0.19	0.0-2.9	1.0-2.0	.15	.2
420: Endicott-----	7-12	27-35	1.15-1.35	0.2-0.6	0.09-0.13	3.0-5.9	1.0-2.0	.10	.2
	12-29	50-60	1.25-1.50	0.06-0.2	0.04-0.10	3.0-5.9	0.5-1.0	.05	.2
	29-60	32-45	1.25-1.55	0.2-0.6	0.06-0.12	3.0-5.9	0.0-0.5	.05	.2
	0-10	5-12	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	10-30	5-12	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.5
	30-34	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
	0-5	5-10	1.20-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.3
	5-9	5-10	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	9-11	5-10	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	11-21	0-0	---	0.0015-0.2	0.00-0.00	---	---	---	---
421: Endicott-----	0-12	5-12	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	12-33	5-12	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.5
	33-37	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
	0-5	5-10	1.20-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.3
	5-9	5-10	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	9-11	5-10	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	11-21	0-0	---	0.0015-0.2	0.00-0.00	---	---	---	---
	0-11	5-12	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	11-31	5-12	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.5
	31-35	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
422: Endicott-----	0-5	5-10	1.20-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.3
	5-9	5-10	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	9-11	5-10	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	11-21	0-0	---	0.0015-0.2	0.00-0.00	---	---	---	---
	0-11	5-12	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	11-31	5-12	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.5
	31-35	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
	0-5	5-10	1.20-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.3
	5-9	5-10	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5
	9-11	5-10	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.5

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
423: Endicott-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-10	5-12	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	10-30	5-12	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55
	30-34	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
424: Endicott-----	0-12	5-12	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	12-33	5-12	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55
	33-37	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
425: Endicott-----	0-11	5-12	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	11-31	5-12	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55
	31-35	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
433: Warden-----	0-4	8-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55
	4-21	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64
	21-60	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64
435: Warden-----	0-4	8-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55
	4-21	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64
	21-60	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64
436: Warden-----	0-4	8-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55
	4-21	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64
	21-60	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64
437: Warden-----	0-3	8-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55
	3-15	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64
	15-60	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64
438: Warden-----	0-3	8-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55
	3-15	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64
	15-60	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64
440: Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kf	Kw
441: Kahlotus-----	In 0-14 14-33 33-60	Pct 3-8 3-7 3-7	g/cc 1.15-1.35 1.30-1.50 1.30-1.50	In/hr 0.6-2 0.6-2 0.6-2	In/in 0.19-0.21 0.16-0.19 0.15-0.18	Pct 0.0-2.9 0.0-2.9 0.0-2.9	Pct 1.0-2.0 0.0-1.0 0.0-0.5	.55 .55 .55	.55 .55 .55
442: Kahlotus-----	0-10 10-37 37-60	3-8 3-7 3-7	1.15-1.35 1.30-1.50 1.30-1.50	0.6-2 0.6-2 0.6-2	0.19-0.21 0.16-0.19 0.15-0.18	0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.0-1.0 0.0-0.5	.55 .55 .55	.55 .55 .55
443: Kahlotus-----	0-10 10-37 37-60	3-8 3-7 3-7	1.15-1.35 1.30-1.50 1.30-1.50	0.6-2 0.6-2 0.6-2	0.19-0.21 0.16-0.19 0.15-0.18	0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.0-1.0 0.0-0.5	.55 .55 .55	.55 .55 .55
444: Kahlotus-----	0-10 10-37 37-60	3-8 3-7 3-7	1.15-1.35 1.30-1.50 1.30-1.50	0.6-2 0.6-2 0.6-2	0.19-0.21 0.16-0.19 0.15-0.18	0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.0-1.0 0.0-0.5	.55 .55 .55	.55 .55 .55
445: Kahlotus-----	0-10 10-37 37-60	3-8 3-7 3-7	1.15-1.35 1.30-1.50 1.30-1.50	0.6-2 0.6-2 0.6-2	0.19-0.21 0.16-0.19 0.15-0.18	0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.0-1.0 0.0-0.5	.55 .55 .55	.55 .55 .55
Kennewick-----	0-10 10-60	3-10 3-10	1.15-1.35 1.30-1.50	0.6-2 0.2-0.6	0.19-0.21 0.18-0.21	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.55 .55	.55 .55
445: Kahlotus-----	0-10 10-37 37-60	3-8 3-7 3-7	1.15-1.35 1.30-1.50 1.30-1.50	0.6-2 0.6-2 0.6-2	0.19-0.21 0.16-0.19 0.15-0.18	0.0-2.9 0.0-2.9 0.0-2.9	1.0-2.0 0.0-1.0 0.0-0.5	.55 .55 .55	.55 .55 .55
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
450: Kennewick-----	0-10 10-60	3-10 3-10	1.15-1.35 1.30-1.50	0.6-2 0.2-0.6	0.19-0.21 0.18-0.21	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.55 .55	.55 .55
451: Kennewick-----	0-10 10-60	3-10 3-10	1.15-1.35 1.30-1.50	0.6-2 0.2-0.6	0.19-0.21 0.18-0.21	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.55 .55	.55 .55
453: Kennewick-----	0-10 10-60	3-10 3-10	1.15-1.35 1.30-1.50	0.6-2 0.2-0.6	0.19-0.21 0.18-0.21	0.0-2.9 0.0-2.9	0.5-1.0 0.0-0.5	.55 .55	.55 .55
485: Bakeoven-----	0-4 4-10 10-14	15-25 18-30 ---	1.25-1.35 1.30-1.40 ---	0.2-0.6 0.2-0.6 ---	0.06-0.09 0.05-0.14 ---	0.0-2.9 0.0-2.9 ---	1.0-3.0 0.5-2.0 ---	.10 .10 ---	.3 .3 ---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
487:	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
Bakeoven-----	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37
	4-10	18-30	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32
	10-14	---	---	---	---	---	---	---	---
488:									
Camaspatch-----	0-4	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	2.0-4.0	.20	.43
	4-7	30-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32
	7-15	40-55	1.20-1.35	0.06-0.2	0.03-0.05	6.0-8.9	1.0-2.0	.17	.24
	15-19	---	---	---	---	---	---	---	---
489:									
Rock Creek-----	0-2	20-27	1.15-1.30	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.20	.37
	2-10	35-45	1.15-1.40	0.2-0.6	0.04-0.06	3.0-5.9	0.0-0.5	.05	.32
	10-14	---	---	---	---	---	---	---	---
495:									
Konner-----	0-22	25-27	1.15-1.30	0.6-2	0.18-0.20	3.0-5.9	3.0-4.0	.32	.32
	22-31	27-35	1.20-1.40	0.06-0.2	0.19-0.21	3.0-5.9	1.0-3.0	.32	.32
	31-60	27-35	1.20-1.50	0.06-0.2	0.14-0.16	3.0-5.9	0.0-1.0	.32	.32
533:									
Sagehill-----	0-4	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.5-1.0	.37	.37
	4-24	2-8	1.30-1.55	0.6-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55
	24-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55
534:									
Sagehill-----	0-4	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.5-1.0	.37	.37
	4-24	2-8	1.30-1.55	0.6-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55
	24-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55
535:									
Sagehill-----	0-4	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.5-1.0	.37	.37
	4-24	2-8	1.30-1.55	0.6-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55
	24-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55
Kiona-----									
	0-7	5-15	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.24	.43
	7-25	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.5-1.0	.20	.43
	25-60	5-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.37
536:									
Sagehill-----	0-4	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.5-1.0	.37	.37
	4-24	2-8	1.30-1.55	0.6-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55
	24-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
537: Sagehill-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-4	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.5-1.0	.37	.3
	4-24	2-8	1.30-1.55	0.6-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
538: Sagehill-----	24-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
	0-4	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.5-1.0	.37	.3
	4-24	2-8	1.30-1.55	0.6-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
540: Walla Walla-----	24-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.5
	0-11	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	11-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
541: Walla Walla-----	50-60	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.5
	0-11	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	11-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
542: Walla Walla-----	50-60	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.5
	0-11	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	11-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
543: Walla Walla-----	50-60	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.5
	0-11	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	11-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
550: Walla Walla-----	50-60	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.5
	0-11	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	11-40	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
551: Walla Walla-----	40-50	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.5
	50-60	---	---	0.06-0.2	0.00-0.00	---	---	---	---
	0-11	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	11-40	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
	40-50	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.5
	50-60	---	---	0.06-0.2	0.00-0.00	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
552: Walla Walla-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-11	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.43
	11-40	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
	40-50	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.55
	50-60	---	---	0.06-0.2	0.00-0.00	---	---	---	---
555: Walla Walla-----	0-15	10-18	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.43	.43
	15-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
	50-60	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55
	0-15	10-18	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.43	.43
	15-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
556: Walla Walla-----	0-15	10-18	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.43	.43
	15-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
	50-60	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55
	0-15	10-18	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.43	.43
	15-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
557: Walla Walla-----	0-15	10-18	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.43	.43
	15-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
	50-60	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55
	0-15	10-18	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.43	.43
	15-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
558: Walla Walla-----	0-15	10-18	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.43	.43
	15-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
	50-60	10-18	1.30-1.45	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55
	0-15	10-18	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	2.0-3.0	.43	.43
	15-50	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.49
560: Olex-----	0-10	13-18	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43
	10-16	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.49
	16-25	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.43
	25-60	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.43
	0-9	13-18	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.28	.43
561: Olex-----	9-20	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.49
	20-60	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.43
	0-10	13-18	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43
	10-16	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.49
	16-25	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.43
562: Olex-----	25-60	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.43
	0-10	13-18	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.43	.43
	10-16	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.49
	16-25	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.43
	25-60	15-18	1.40-1.50	0.6-2	0.06-0.12	0.0-2.9	0.5-1.0	.28	.43

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
570: Bolicker-----	0-18	10-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	18-25	10-18	1.25-1.45	0.6-2	0.16-0.20	0.0-2.9	1.0-2.0	.49	.4
	25-45	10-18	1.25-1.45	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.4
	45-60	10-18	1.30-1.50	0.6-2	0.09-0.14	0.0-2.9	0.5-1.0	.20	.4
571: Bolicker-----	0-18	10-18	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	18-25	10-18	1.25-1.45	0.6-2	0.16-0.20	0.0-2.9	1.0-2.0	.49	.4
	25-45	10-18	1.25-1.45	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.4
	45-60	10-18	1.30-1.50	0.6-2	0.09-0.14	0.0-2.9	0.5-1.0	.20	.4
580: Benwy-----	0-4	10-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	4-10	10-15	1.20-1.30	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.5
	10-37	18-28	1.25-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.5
	37-46	18-28	1.25-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.5
	46-60	18-28	1.25-1.40	0.6-2	0.14-0.19	0.0-2.9	0.0-1.0	.32	.4
581: Benwy-----	0-4	10-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	4-10	10-15	1.20-1.30	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.5
	10-37	18-28	1.25-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.5
	37-46	18-28	1.25-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.5
	46-60	18-28	1.25-1.40	0.6-2	0.14-0.19	0.0-2.9	0.0-1.0	.32	.4
582: Benwy-----	0-4	10-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	4-10	10-15	1.20-1.30	0.6-2	0.17-0.21	0.0-2.9	0.5-2.0	.49	.5
	10-37	18-28	1.25-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.5
	37-46	18-28	1.25-1.40	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.5
	46-60	18-28	1.25-1.40	0.6-2	0.14-0.19	0.0-2.9	0.0-1.0	.32	.4
583: Benwy-----	0-11	10-15	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.4
	11-15	10-15	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.49	.4
	15-28	22-28	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.4
	28-41	22-28	1.30-1.50	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.32	.4
	41-45	---	---	0.0015-0.06	0.00-0.00	---	---	---	---
584: Mikkalo-----	0-15	8-12	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.4
	15-26	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.5
	26-38	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.5
	38-42	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
584: Bakeoven-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37
	4-10	18-30	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32
	10-14	---	---	---	---	---	---	---	---
585: Mikkalo-----	0-15	8-12	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	15-26	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	26-38	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	38-42	---	---	---	---	---	---	---	---
Bakeoven-----	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37
	4-10	18-30	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32
	10-14	---	---	---	---	---	---	---	---
586: Mikkalo-----	0-15	8-12	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	15-26	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	26-38	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	38-42	---	---	---	---	---	---	---	---
587: Mikkalo-----	0-15	8-12	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	15-26	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	26-38	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	38-42	---	---	---	---	---	---	---	---
588: Mikkalo-----	0-15	8-12	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	15-26	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	26-38	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	38-42	---	---	---	---	---	---	---	---
589: Mikkalo-----	0-15	8-12	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	15-26	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	26-38	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	38-42	---	---	---	---	---	---	---	---
590: Mikkalo-----	0-15	8-12	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49
	15-26	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	26-38	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	38-42	---	---	---	---	---	---	---	---

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kf	Kw
591: Lickskillet-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-8	15-25	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.20	.33
	8-18	20-30	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.33
	18-22	---	---	---	---	---	---	---	---
Mikkalo-----	0-15	8-12	1.25-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.44
	15-26	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	26-38	8-12	1.25-1.40	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55
	38-42	---	---	---	---	---	---	---	---
600: Meloza-----	0-3	40-45	1.10-1.30	0.06-0.2	0.14-0.16	3.0-5.9	1.0-2.0	.32	.33
	3-27	45-60	1.15-1.40	0.06-0.2	0.14-0.17	6.0-8.9	0.5-2.0	.28	.22
	27-60	35-60	1.15-1.40	0.06-0.2	0.14-0.17	6.0-8.9	0.0-0.5	.28	.22
670: Wato-----	0-19	15-20	1.10-1.20	2-6	0.18-0.20	0.0-2.9	1.0-4.0	.43	.44
	19-36	10-15	1.10-1.30	2-6	0.15-0.17	0.0-2.9	0.0-1.0	.49	.44
	36-49	10-15	1.10-1.30	2-6	0.09-0.11	0.0-2.9	0.0-1.0	.20	.33
	49-60	5-10	1.30-1.60	6-20	0.04-0.05	0.0-2.9	0.0-0.5	.05	.11
671: Wato-----	0-19	15-20	1.10-1.20	2-6	0.18-0.20	0.0-2.9	1.0-4.0	.43	.44
	19-36	10-15	1.10-1.30	2-6	0.15-0.17	0.0-2.9	0.0-1.0	.49	.44
	36-49	10-15	1.10-1.30	2-6	0.09-0.11	0.0-2.9	0.0-1.0	.20	.33
	49-60	5-10	1.30-1.60	6-20	0.04-0.05	0.0-2.9	0.0-0.5	.05	.11
672: Wato-----	0-19	15-20	1.10-1.20	2-6	0.18-0.20	0.0-2.9	1.0-4.0	.43	.44
	19-36	10-15	1.10-1.30	2-6	0.15-0.17	0.0-2.9	0.0-1.0	.49	.44
	36-49	10-15	1.10-1.30	2-6	0.09-0.11	0.0-2.9	0.0-1.0	.20	.33
	49-60	5-10	1.30-1.60	6-20	0.04-0.05	0.0-2.9	0.0-0.5	.05	.11
681: Nansene-----	0-18	15-20	1.10-1.20	2-6	0.18-0.20	0.0-2.9	1.0-4.0	.43	.44
	18-50	10-15	1.10-1.30	2-6	0.15-0.17	0.0-2.9	0.0-1.0	.49	.44
	36-49	10-15	1.10-1.30	2-6	0.09-0.11	0.0-2.9	0.0-1.0	.20	.33
	49-60	5-10	1.30-1.60	6-20	0.04-0.05	0.0-2.9	0.0-0.5	.05	.11
682: Nansene-----	0-18	10-18	1.25-1.35	0.6-2	0.16-0.19	0.0-2.9	2.0-5.0	.43	.44
	18-50	10-18	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.55	.55
	50-60	10-18	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55
700: Urban land-----	0-18	10-18	1.25-1.35	0.6-2	0.16-0.19	0.0-2.9	2.0-5.0	.43	.44
	18-50	10-18	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.55	.55
	50-60	10-18	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55

Table 6.---Physical Properties of the Soils---Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
711: Pits, quarry-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-60	---	---	---	---	---	---	---	---
721: Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
	0-60	---	---	---	---	---	---	---	---
724C: Haploxerolls-----	0-13	5-15	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	1.0-3.0	.17	.2
	13-60	5-15	1.45-1.55	0.6-20	0.01-0.11	0.0-2.9	0.0-1.0	.10	.2
724D: Haploxerolls-----	0-13	5-15	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	1.0-3.0	.17	.2
	13-60	5-15	1.45-1.55	0.6-20	0.01-0.11	0.0-2.9	0.0-1.0	.10	.2
725: Cauley-----	0-60	---	---	---	---	---	---	---	---
	0-15	15-20	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	2.0-3.0	.43	.4
	15-60	18-27	1.25-1.40	0.6-2	0.12-0.20	3.0-5.9	0.5-1.0	.28	.3
726: Cauley-----	0-15	15-20	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	2.0-3.0	.43	.4
	15-60	18-27	1.25-1.40	0.6-2	0.12-0.20	3.0-5.9	0.5-1.0	.28	.3
727: Cauley-----	0-15	15-20	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	2.0-3.0	.43	.4
	15-60	18-27	1.25-1.40	0.6-2	0.12-0.20	3.0-5.9	0.5-1.0	.28	.3
729: Cauley-----	0-15	15-20	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	2.0-3.0	.43	.4
	15-60	18-27	1.25-1.40	0.6-2	0.12-0.20	3.0-5.9	0.5-1.0	.28	.3
730: Stacker-----	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	28-32	---	---	---	---	---	---	---	---

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kf	Kw
730: Horseflat-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.4
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.3
	12-15 15-19	25-33 ---	1.30-1.40 ---	0.2-0.6 ---	0.06-0.12 ---	0.0-2.9 ---	1.0-2.0 ---	.10 ---	.3 ---
731: Stacker-----	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	28-32	---	---	---	---	---	---	---	---
Horseflat-----	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.4
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.3
	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.3
	15-19	---	---	---	---	---	---	---	---
732: Stacker-----	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	28-32	---	---	---	---	---	---	---	---
Horseflat-----	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.4
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.3
	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.3
	15-19	---	---	---	---	---	---	---	---
737: Wind River-----	0-6	5-10	1.30-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.24	.2
	6-42	5-10	1.30-1.40	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.24	.2
	42-60	2-8	1.30-1.40	2-6	0.09-0.10	0.0-2.9	0.0-0.5	.20	.2
742: Gwin-----	0-5	5-12	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	2.0-3.0	.20	.3
	5-11	25-35	1.30-1.45	0.2-2	0.07-0.09	0.0-2.9	1.0-2.0	.10	.4
	11-15	---	---	---	---	---	---	---	---
751: Lorena-----	0-9	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3
	9-25	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	25-29	---	---	---	---	---	---	---	---
Rockly-----	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
	10-14	---	---	---	---	---	---	---	---

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
752: Lorena-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-9	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3
	9-25	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
Rockly-----	25-29	---	---	---	---	---	---	---	---
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
756: Walla Walla-----	10-14	---	---	---	---	---	---	---	---
	0-10	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	10-60	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
758: Walla Walla-----	0-10	10-18	1.10-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-3.0	.43	.4
	10-60	10-18	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
761: Balake-----	0-12	18-25	1.10-1.25	0.6-2	0.08-0.13	3.0-5.9	1.0-3.0	.10	.3
	12-60	25-35	1.40-1.50	0.2-0.6	0.09-0.14	3.0-5.9	0.5-1.0	.05	.3
762: Balake-----	0-12	18-25	1.10-1.25	0.6-2	0.08-0.13	3.0-5.9	1.0-3.0	.10	.3
	12-60	25-35	1.40-1.50	0.2-0.6	0.09-0.14	3.0-5.9	0.5-1.0	.05	.3
763: Balake-----	0-12	18-25	1.10-1.25	0.6-2	0.08-0.13	3.0-5.9	1.0-3.0	.10	.3
	12-60	25-35	1.40-1.50	0.2-0.6	0.09-0.14	3.0-5.9	0.5-1.0	.05	.3
764: Balake-----	0-12	18-25	1.10-1.25	0.6-2	0.08-0.13	3.0-5.9	1.0-3.0	.10	.3
	12-60	25-35	1.40-1.50	0.2-0.6	0.09-0.14	3.0-5.9	0.5-1.0	.05	.3
765: Balake-----	0-12	18-25	1.10-1.25	0.6-2	0.08-0.13	3.0-5.9	1.0-3.0	.10	.3
	12-60	25-35	1.40-1.50	0.2-0.6	0.09-0.14	3.0-5.9	0.5-1.0	.05	.3
766: Gunn-----	0-12	18-25	1.10-1.25	0.6-2	0.08-0.13	3.0-5.9	1.0-3.0	.10	.3
	12-60	25-35	1.40-1.50	0.2-0.6	0.09-0.14	3.0-5.9	0.5-1.0	.05	.3
Galiente-----	0-7	15-20	1.10-1.30	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.37	.3
	7-15	22-32	1.15-1.50	0.2-0.6	0.17-0.19	3.0-5.9	0.0-2.0	.37	.3
	15-60	28-35	1.30-1.65	0.2-0.6	0.16-0.18	3.0-5.9	0.0-2.0	.32	.3
Galiente-----	0-11	15-20	1.00-1.15	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.32	.3
	11-60	35-55	1.35-1.40	0.06-0.2	0.14-0.18	6.0-8.9	0.0-1.0	.20	.2

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kw	Kf
767: Gunn-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-7	15-20	1.10-1.30	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.37	.3
	7-15	22-32	1.15-1.50	0.2-0.6	0.17-0.19	3.0-5.9	0.0-2.0	.37	.3
	15-60	28-35	1.30-1.65	0.2-0.6	0.16-0.18	3.0-5.9	0.0-2.0	.32	.3
Galiente-----	0-11	15-25	1.00-1.15	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.32	.3
	11-60	35-55	1.35-1.40	0.06-0.2	0.14-0.18	6.0-8.9	0.0-1.0	.20	.2
768: Gunn-----	0-7	15-20	1.10-1.30	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.37	.3
	7-15	22-32	1.15-1.50	0.2-0.6	0.17-0.19	3.0-5.9	0.0-2.0	.37	.3
	15-60	28-35	1.30-1.65	0.2-0.6	0.16-0.18	3.0-5.9	0.0-2.0	.32	.3
Galiente-----	0-11	15-25	1.00-1.15	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.32	.3
	11-60	35-55	1.35-1.40	0.06-0.2	0.14-0.18	6.0-8.9	0.0-1.0	.20	.2
769: Aquic Haploxerolls----	0-8	10-25	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	2.0-3.0	.37	.3
	8-16	10-25	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	2.0-3.0	.37	.3
	16-42	10-25	1.15-1.30	0.6-2	0.15-0.20	0.0-2.9	2.0-3.0	.28	.2
	42-60	5-30	1.15-1.55	0.0000-20	0.02-0.12	0.0-2.9	0.5-2.0	.24	.2
775: Horseflat-----	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.4
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.3
	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.3
	15-19	---	---	---	---	---	---	---	---
776: Horseflat-----	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.4
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.3
	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.3
	15-19	---	---	---	---	---	---	---	---
777: Horseflat-----	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.4
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.3
	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.3
	15-19	---	---	---	---	---	---	---	---
781: Gunn-----	0-7	15-20	1.10-1.30	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.37	.3
	7-15	22-32	1.15-1.50	0.2-0.6	0.17-0.19	3.0-5.9	0.0-2.0	.37	.3
	15-60	28-35	1.30-1.65	0.2-0.6	0.16-0.18	3.0-5.9	0.0-2.0	.32	.3

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
782: Gunn-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-7	15-20	1.10-1.30	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.37	.37
	7-15 15-60	22-32 28-35	1.15-1.50 1.30-1.65	0.2-0.6 0.2-0.6	0.17-0.19 0.16-0.18	3.0-5.9 3.0-5.9	0.0-2.0 0.0-2.0	.37 .32	.37 .37
783: Gunn-----	0-7	15-20	1.10-1.30	0.6-2	0.17-0.21	0.0-2.9	2.0-4.0	.37	.37
	7-15	22-32	1.15-1.50	0.2-0.6	0.17-0.19	3.0-5.9	0.0-2.0	.37	.37
	15-60	28-35	1.30-1.65	0.2-0.6	0.16-0.18	3.0-5.9	0.0-2.0	.32	.37
790: Fisherhill-----	0-9	15-23	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.43
	9-60	25-35	1.25-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.5-1.0	.43	.43
791: Fisherhill-----	0-9	15-23	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.43
	9-60	25-35	1.25-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.5-1.0	.43	.43
792: Fisherhill-----	0-9	15-23	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.43
	9-60	25-35	1.25-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.5-1.0	.43	.43
793: Goldendale-----	0-14	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.43
	14-20	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.43
	20-60	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.37
796: Lorena-----	0-9	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37
	9-25	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	25-29	---	---	---	---	---	---	---	---
798: Dalig-----	0-5	15-25	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37
	5-60	25-35	1.25-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.0-1.0	.28	.28
799: Dalig-----	0-5	15-25	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-3.0	.37	.37
	5-60	25-35	1.25-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.0-1.0	.28	.28
890: Stacker-----	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.43
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	28-32	---	---	---	---	---	---	---	---

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
891: Stacker-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	28-32	---	---	---	---	---	---	---	---
893: Fisherhill-----	0-9	15-23	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	9-60	25-35	1.25-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.5-1.0	.43	.4
	0-9	15-23	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	9-60	25-35	1.25-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.5-1.0	.43	.4
895: Fisherhill-----	0-9	15-23	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	9-60	25-35	1.25-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.5-1.0	.43	.4
	0-9	15-23	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	9-60	25-35	1.25-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.5-1.0	.43	.4
896: Stacker-----	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	28-32	---	---	---	---	---	---	---	---
	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
897: Stacker-----	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	28-32	---	---	---	---	---	---	---	---
	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
898: Stacker-----	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	28-32	---	---	---	---	---	---	---	---
	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
899: Stacker-----	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
	18-28	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	28-32	---	---	---	---	---	---	---	---
	0-18	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.4
930A: Rockly-----	0-6	20-27	1.25-1.35	0.6-2	0.12-0.16	0.0-2.9	1.0-3.0	.20	.3
	6-9	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
	9-13	---	---	---	---	---	---	---	---
	0-12	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3
Lorena-----	12-23	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.4
	23-35	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	35-39	---	---	---	---	---	---	---	---
	0-12	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
930B: Rockly-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.37
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.37
	10-14	---	---	---	---	---	---	---	---
Lorena-----	0-12	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37
	12-23	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.43
	23-35	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	35-39	---	---	---	---	---	---	---	---
950: Lorena-----	0-9	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37
	9-25	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	25-29	---	---	---	---	---	---	---	---
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.37
Rockly-----	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.37
	10-14	---	---	---	---	---	---	---	---
951: Lorena-----	0-9	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37
	9-25	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	25-29	---	---	---	---	---	---	---	---
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.37
Rockly-----	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.37
	10-14	---	---	---	---	---	---	---	---
952: Lorena-----	0-9	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37
	9-25	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	25-29	---	---	---	---	---	---	---	---
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.37
Rockly-----	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.37
	10-14	---	---	---	---	---	---	---	---
959: Goldendale-----	0-9	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37
	9-25	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	25-29	---	---	---	---	---	---	---	---
	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.37
Goldendale-----	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.37
	10-14	---	---	---	---	---	---	---	---
	0-10	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.43
	10-15	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.43
15-45	18-35	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.37
	45-49	---	---	---	---	---	---	---	---

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kf	Kw
969A: Goildendale-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-10	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	10-15	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	15-45 45-49	18-35 ---	1.40-1.65 ---	0.6-2 ---	0.19-0.21 ---	3.0-5.9 ---	1.0-2.0 ---	.37 ---	.3 --
969B: Goildendale-----	0-10	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	10-15	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	15-45	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.3
	45-49	---	---	---	---	---	---	---	--
969C: Goildendale-----	0-10	13-18	1.20-1.50	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	10-15	13-23	1.40-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	15-45	18-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	1.0-2.0	.37	.3
	45-49	---	---	---	---	---	---	---	--
970: Oroke-----	0-5	15-20	1.20-1.35	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.20	.3
	5-15	15-20	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.28	.3
	15-22	18-25	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.15	.3
	22-60	25-35	1.30-1.50	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.10	.3
Tronsen-----	0-8	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.4
	8-14	35-50	1.20-1.40	0.6-2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.3
	14-60	35-50	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.0-0.5	.10	.3
971: Oroke-----	0-5	15-20	1.20-1.35	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.20	.3
	5-15	15-20	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.28	.3
	15-22	18-25	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.15	.3
	22-60	25-35	1.30-1.50	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.10	.3
Tronsen-----	0-8	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.4
	8-14	35-50	1.20-1.40	0.6-2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.3
	14-60	35-50	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.0-0.5	.10	.3
987: Asotin-----	0-10	10-15	1.20-1.30	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.43	.4
	10-32	10-18	1.30-1.40	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.49	.4
	32-38	10-18	1.30-1.40	0.6-2	0.14-0.17	0.0-2.9	0.5-1.0	.32	.4
	38-42	---	---	---	---	---	---	---	--

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion f	
								Kw	Kf
993B: Goldendale-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3
993C: Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3
993D: Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3
994: Lorena-----	0-12	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3
	12-23	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.4
	23-35	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	35-39	---	---	---	---	---	---	---	---
994A: Lorena-----	0-12	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3
	12-23	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.4
	23-35	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	35-39	---	---	---	---	---	---	---	---
994B: Lorena-----	0-12	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3
	12-23	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.4
	23-35	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	35-39	---	---	---	---	---	---	---	---
994C: Lorena-----	0-12	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3
	12-23	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.4
	23-35	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	35-39	---	---	---	---	---	---	---	---
995: Hyprairie-----	0-12	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.3
	12-23	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.4
	23-35	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.4
	35-39	---	---	---	---	---	---	---	---
995: Hyprairie-----	0-7	13-18	1.10-1.30	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.37	.3
	7-25	13-18	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.43	.4
	25-48	18-30	1.30-1.50	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.37	.3
	48-60	18-35	1.30-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.37	.3

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion	
								Kf	Kw
1013: Tekison-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-8	15-20	1.15-1.35	0.6-2	0.13-0.16	0.0-2.9	1.0-3.0	.28	.3
	8-18	20-35	1.25-1.45	0.6-2	0.15-0.17	3.0-5.9	1.0-2.0	.24	.3
	18-44	40-55	1.15-1.30	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.10	.2
	44-60	35-45	1.25-1.45	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.10	.3
1014: Tekison-----	0-8	15-20	1.15-1.35	0.6-2	0.13-0.16	0.0-2.9	1.0-3.0	.28	.3
	8-18	20-35	1.25-1.45	0.6-2	0.15-0.17	3.0-5.9	1.0-2.0	.24	.3
	18-44	40-55	1.15-1.30	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.10	.2
	44-60	35-45	1.25-1.45	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.10	.3
Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3
1015: Rockly-----	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
	10-14	---	---	---	---	---	---	---	---
Tekison-----	0-8	15-20	1.15-1.35	0.6-2	0.13-0.16	0.0-2.9	1.0-3.0	.28	.3
	8-18	20-35	1.25-1.45	0.6-2	0.15-0.17	3.0-5.9	1.0-2.0	.24	.3
	18-44	40-55	1.15-1.30	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.10	.2
	44-60	35-45	1.25-1.45	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.10	.3
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
1016: Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3
Rockly-----	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.3
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.3
	10-14	---	---	---	---	---	---	---	---
1017: Tronsen-----	0-8	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.4
	8-14	35-50	1.20-1.40	0.6-2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.3
	14-60	35-50	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.0-0.5	.10	.3
Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.4
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.4
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.3

Table 6.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
1017: Horseflat-----	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.43
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37
	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37
	15-19	---	---	---	---	---	---	---	---
1018: Tronsen-----	0-8	15-20	1.15-1.30	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.43
	8-14	35-50	1.20-1.40	0.6-2	0.10-0.12	3.0-5.9	0.5-1.0	.15	.37
	14-60	35-50	1.30-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.0-0.5	.10	.37
	0-6	10-18	1.30-1.50	2-6	0.08-0.10	0.0-2.9	1.0-3.0	.05	.20
	6-12	10-20	1.30-1.50	0.6-2	0.09-0.14	0.0-2.9	1.0-2.0	.10	.32
Goodnoe-----	12-22	18-27	1.20-1.45	0.6-2	0.08-0.12	3.0-5.9	0.0-1.0	.10	.37
	22-29	18-27	1.25-1.45	0.6-2	0.05-0.10	3.0-5.9	0.0-1.0	.05	.32
	29-33	---	---	---	---	---	---	---	---
	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.43
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37
1030: Stacker-----	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37
	15-19	---	---	---	---	---	---	---	---
	0-16	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.43
	16-36	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	36-40	---	---	---	---	---	---	---	---
Swalecreek-----	0-9	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
	9-26	18-25	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43
	26-60	18-35	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.37	.43
	0-4	15-25	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.43
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37
Horseflat-----	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37
	15-19	---	---	---	---	---	---	---	---
	0-16	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.43
	16-36	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	36-40	---	---	---	---	---	---	---	---
1031: Stacker-----	0-9	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
	9-26	18-25	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43
	26-60	18-35	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.37	.43
	0-4	15-20	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.43
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37
Swalecreek-----	12-15	25-33	1.30-1.40	0.2-0.6	0.06-0.12	0.0-2.9	1.0-2.0	.10	.37
	15-19	---	---	---	---	---	---	---	---
	0-16	15-20	1.10-1.25	0.6-2	0.17-0.21	0.0-2.9	1.0-2.0	.43	.43
	16-36	22-30	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	36-40	---	---	---	---	---	---	---	---
Horseflat-----	0-9	15-20	1.25-1.45	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.43	.43
	9-26	18-25	1.30-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43
	26-60	18-35	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.37	.43
	0-4	15-20	1.25-1.40	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.20	.43
	4-12	15-30	1.30-1.40	0.2-0.6	0.08-0.14	0.0-2.9	1.0-2.0	.15	.37

Table 6.---Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion fa	
								Kw	Kf
1093:	In	Pct	g/cc	In/hr	In/in	Pct	Pct		
Lorena-----	0-16	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37
	16-31	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.43
	31-36	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	36-40	---	---	---	---	---	---	---	---
1096:									
Oreoke-----	0-5	15-20	1.20-1.35	0.6-2	0.18-0.20	0.0-2.9	3.0-5.0	.20	.32
	5-15	15-20	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-3.0	.28	.32
	15-22	18-25	1.25-1.45	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.15	.37
	22-60	25-35	1.30-1.50	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.10	.32
Goldendale-----	0-14	13-18	1.25-1.45	0.6-2	0.17-0.21	0.0-2.9	1.0-3.0	.43	.43
	14-20	13-23	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.43
	20-60	25-35	1.40-1.65	0.6-2	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---
1097:									
Tekison-----	0-8	15-20	1.15-1.35	0.6-2	0.13-0.16	0.0-2.9	1.0-3.0	.28	.32
	8-18	20-35	1.25-1.45	0.6-2	0.15-0.17	3.0-5.9	1.0-2.0	.24	.37
	18-44	40-55	1.15-1.30	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.10	.28
	44-60	35-45	1.25-1.45	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.10	.37
Lorena-----	0-16	15-20	1.20-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.37	.37
	16-31	18-27	1.35-1.60	0.6-2	0.16-0.20	3.0-5.9	0.5-1.0	.43	.43
	31-36	18-30	1.40-1.60	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.43	.43
	36-40	---	---	---	---	---	---	---	---
Rockly-----	0-4	20-27	1.25-1.35	0.6-2	0.06-0.08	0.0-2.9	1.0-3.0	.10	.37
	4-10	20-30	1.30-1.40	0.6-2	0.06-0.11	0.0-2.9	0.0-0.5	.10	.37
	10-14	---	---	---	---	---	---	---	---
2961:									
Renslow-----	0-13	5-10	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.55	.55
	13-20	10-18	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.55	.55
	20-45	10-13	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55
	45-49	---	---	---	---	---	---	---	---
2971:									
Renslow-----	0-13	5-10	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.55	.55
	13-20	10-18	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.55	.55
	20-45	10-13	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55
	45-49	---	---	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
1B:							
Satus-----	0-4	10-15	5.6-6.5	0	0	0	0
	4-9	10-20	5.6-6.5	0	0	0	0
	9-42	10-20	5.6-6.5	0	0	0	0
	42-60	10-20	5.6-6.5	0	0	0	0
2C:							
Satus-----	0-4	10-15	5.6-6.5	0	0	0	0
	4-9	10-20	5.6-6.5	0	0	0	0
	9-42	10-20	5.6-6.5	0	0	0	0
	42-60	10-20	5.6-6.5	0	0	0	0
3C:							
Pird-----	0-9	10-20	5.6-6.0	0	0	0	0
	9-41	5.0-15	5.1-6.5	0	0	0	0
	41-60	5.0-10	5.1-6.5	0	0	0	0
4B:							
Grandpon-----	0-20	5.0-20	5.6-6.5	0	0	0	0
	20-30	5.0-15	5.6-6.5	0	0	0	0
	30-60	10-20	5.6-6.5	0	0	0	0
6B:							
Berson-----	0-10	10-20	5.6-6.5	0	0	0	0
	10-32	10-20	5.6-6.5	0	0	0	0
	32-57	10-20	5.6-6.5	0	0	0	0
	57-67	---	---	---	---	---	---
7B:							
Bocker-----	0-2	10-20	6.1-6.5	0	0	0	0
	2-10	10-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
Klicko-----	0-7	10-20	6.1-7.3	0	0	0	0
	7-17	8.0-15	6.1-7.3	0	0	0	0
	17-31	8.0-15	6.1-7.3	0	0	0	0
	31-39	10-15	6.1-7.3	0	0	0	0
	39-43	---	---	---	---	---	---
7C:							
Sapkin-----	0-7	10-20	6.1-7.3	0	0	0	0
	7-16	10-20	6.1-7.3	0	0	0	0
	16-36	10-20	6.1-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
8C:							
Berson-----	0-10	10-20	5.6-6.5	0	0	0	0
	10-32	10-20	5.6-6.5	0	0	0	0
	32-57	10-20	5.6-6.5	0	0	0	0
	57-67	---	---	---	---	---	---
9:							
Quincy-----	0-10	2.0-7.0	6.1-7.8	0	0	0	0
	10-60	1.0-6.0	6.6-8.4	0-3	0	0.0-2.0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
9B:							
Pird-----	0-9	10-20	5.6-6.0	0	0	0	0
	9-41	5.0-15	5.1-6.5	0	0	0	0
	41-60	5.0-10	5.1-6.5	0	0	0	0
9C:							
Quincy-----	0-8	2.0-7.0	6.1-7.8	0	0	0	0
	8-60	1.0-6.0	6.6-8.4	0-3	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
10:							
Pits, gravel-----	0-60	---	---	---	---	---	---
10B:							
Andic Haplocryalfs---	0-12	15-25	5.6-6.5	0	0	0	0
	12-27	15-25	5.6-6.5	0	0	0	0
	27-39	10-20	5.6-6.5	0	0	0	0
	39-43	---	---	---	---	---	---
11:							
Xerands-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-36	10-20	5.6-6.5	0	0	0	0
	36-60	8.0-15	5.6-6.5	0	0	0	0
11A:							
Xerands-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-36	10-20	5.6-6.5	0	0	0	0
	36-60	8.0-15	5.6-6.5	0	0	0	0
11B:							
Xerands-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-36	10-20	5.6-6.5	0	0	0	0
	36-60	8.0-15	5.6-6.5	0	0	0	0
11C:							
Xerands-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-36	10-20	5.6-6.5	0	0	0	0
	36-60	8.0-15	5.6-6.5	0	0	0	0
12:							
Legall-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-40	10-20	5.6-6.5	0	0	0	0
	40-60	15-25	5.6-6.5	0	0	0	0
12A:							
Tekison-----	0-8	10-20	5.6-7.3	0	0	0	0
	8-18	20-30	5.6-6.5	0	0	0	0
	18-44	20-30	5.6-6.5	0	0	0	0
	44-60	20-25	5.6-6.5	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
12B:							
Maydol-----	0-5	12-20	6.1-7.3	0	0	0	0
	5-44	12-20	5.6-6.5	0	0	0	0
	44-60	12-18	5.6-6.5	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
12C:							
Legall-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-40	10-20	5.6-6.5	0	0	0	0
	40-60	15-25	5.6-6.5	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
12D:							
Lyville-----	0-7	10-20	6.1-7.3	0	0	0	0
	7-13	10-20	6.1-6.5	0	0	0	0
	13-27	10-20	5.6-6.5	0	0	0	0
	27-44	10-20	5.6-6.5	0	0	0	0
	44-48	---	---	---	---	---	---
12E:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
Legall-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-40	10-20	5.6-6.5	0	0	0	0
	40-60	15-25	5.6-6.5	0	0	0	0
12F:							
Lyville-----	0-7	10-20	6.1-7.3	0	0	0	0
	7-13	10-20	6.1-6.5	0	0	0	0
	13-27	10-20	5.6-6.5	0	0	0	0
	27-44	10-20	5.6-6.5	0	0	0	0
	44-48	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
13B:							
Itat-----	0-3	10-20	5.6-6.5	0	0	0	0
	3-21	10-20	5.6-6.5	0	0	0	0
	21-31	10-15	5.6-6.5	0	0	0	0
	31-60	15-20	5.6-6.5	0	0	0	0
13C:							
Itat-----	0-4	10-20	5.6-6.5	0	0	0	0
	4-16	10-20	5.6-6.5	0	0	0	0
	16-28	10-15	5.6-6.5	0	0	0	0
	28-60	15-20	5.6-6.5	0	0	0	0
14A:							
Rockly-----	0-5	15-30	6.1-7.3	0	0	0	0
	5-11	15-30	6.1-7.3	0	0	0	0
	11-15	---	---	---	---	---	---
14B:							
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
15:							
Rockly-----	0-5	15-30	6.1-7.3	0	0	0	0
	5-11	15-30	6.1-7.3	0	0	0	0
	11-15	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
15: Rock outcrop-----	0-60	---	---	---	---	---	---
16: Sauter-----	0-6	10-20	5.6-6.5	0	0	0	0
	6-19	10-20	5.6-6.5	0	0	0	0
	19-60	15-25	5.6-6.5	0	0	0	0
16B: Suta-----	0-7	12-20	6.1-7.3	0	0	0	0
	7-42	10-15	6.1-7.3	0	0	0	0
	42-46	---	---	---	---	---	---
16C: Sauter-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-17	10-20	5.6-6.5	0	0	0	0
	17-60	15-25	5.6-6.5	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
16E: Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
Sauter-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-17	10-20	5.6-6.5	0	0	0	0
	17-60	15-25	5.6-6.5	0	0	0	0
17A: Presher-----	0-6	10-20	6.1-6.5	0	0	0	0
	6-18	8.0-18	5.6-6.5	0	0	0	0
	18-60	10-20	5.6-6.5	0	0	0	0
17B: Presher-----	0-5	10-20	6.1-6.5	0	0	0	0
	5-13	8.0-18	5.6-6.5	0	0	0	0
	13-44	10-20	5.6-6.5	0	0	0	0
	44-60	10-20	5.6-6.5	0	0	0	0
17D: Quiden-----	0-4	8.0-20	6.1-6.5	0	0	0	0
	4-14	5.0-15	6.1-6.5	0	0	0	0
	14-60	12-20	6.1-6.5	0	0	0	0
18A: Kaiders-----	0-6	8.0-15	6.1-7.3	0	0	0	0
	6-20	8.0-15	6.1-7.3	0	0	0	0
	20-42	12-20	5.6-7.3	0	0	0	0
	42-60	8.0-15	5.6-7.3	0	0	0	0
18B: Kaiders-----	0-6	8.0-15	6.1-7.3	0	0	0	0
	6-20	8.0-15	6.1-7.3	0	0	0	0
	20-42	12-20	5.6-7.3	0	0	0	0
	42-60	8.0-15	5.6-7.3	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
18C:							
Kaiders-----	0-6	8.0-15	6.1-7.3	0	0	0	0
	6-20	8.0-15	6.1-7.3	0	0	0	0
	20-42	12-20	5.6-7.3	0	0	0	0
	42-60	8.0-15	5.6-7.3	0	0	0	0
19:							
Kiakus-----	0-11	15-25	6.1-6.5	0	0	0	0
	11-28	15-30	6.1-7.3	0	0	0	0
	28-33	20-25	6.1-7.3	0	0	0	0
	33-37	---	---	---	---	---	---
Munset-----	0-2	10-20	5.6-6.5	0	0	0	0
	2-16	15-25	5.6-6.5	0	0	0	0
	16-22	15-30	5.6-6.0	0	0	0	0
	22-25	10-20	5.6-6.0	0	0	0	0
	25-35	---	---	---	---	---	---
Wahoo-----	0-5	20-30	5.6-6.5	0	0	0	0
	5-12	20-30	5.6-6.5	0	0	0	0
	12-22	---	---	---	---	---	---
20:							
Nook-----	0-10	20-25	6.1-7.3	0	0	0	0
	10-25	15-20	6.1-7.3	0	0	0	0
	25-60	15-20	6.1-7.3	0	0	0	0
20A:							
Threecreeks-----	0-24	10-20	5.6-6.5	0	0	0	0
	24-41	10-20	5.6-6.5	0	0	0	0
	41-60	5.0-10	5.6-6.5	0	0	0	0
21:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
22:							
Fluventic Haploxerolls-----	0-12	5-10	6.1-7.3	0	0	0	0
	12-26	5-10	6.1-7.3	0	0	0	0
	26-40	5-10	6.6-7.8	0	0	0	0
	40-60	2-10	6.6-7.8	0	0	0	0
Riverwash-----	0-60	---	---	---	---	---	---
23:							
Gunn-----	0-6	10-20	5.6-6.5	0	0	0	0
	6-18	10-20	5.6-6.5	0	0	0	0
	18-60	15-25	5.6-6.5	0	0	0	0
23A:							
Gunn-----	0-5	5.0-15	5.6-6.5	0	0	0	0
	5-33	10-25	5.6-6.5	0	0	0	0
	33-60	15-30	5.6-6.5	0	0	0	0
23B:							
Gunn-----	0-15	10-20	5.6-6.5	0	0	0	0
	15-32	10-20	5.6-6.5	0	0	0	0
	32-60	15-25	5.6-6.5	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
23C:							
Gunn-----	0-5	5.0-15	5.6-6.5	0	0	0	0
	5-33	10-25	5.6-6.5	0	0	0	0
	33-60	15-30	5.6-6.5	0	0	0	0
24:							
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
Itat-----	0-3	10-20	5.6-6.5	0	0	0	0
	3-20	10-20	5.6-6.5	0	0	0	0
	20-30	10-15	5.6-6.5	0	0	0	0
	30-60	15-20	5.6-6.5	0	0	0	0
25:							
Leidl-----	0-5	10-20	6.1-6.5	0	0	0	0
	5-12	15-30	6.1-7.3	0	0	0	0
	12-25	15-30	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
Dillcourt-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-22	10-20	5.6-6.5	0	0	0	0
	22-60	10-20	5.6-6.5	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
25A:							
Leidl-----	0-7	10-20	6.1-7.3	0	0	0	0
	7-24	15-30	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
25B:							
Leidl-----	0-5	10-20	6.1-7.3	0	0	0	0
	5-12	15-30	6.1-7.3	0	0	0	0
	12-25	15-30	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
Oreoke-----	0-5	10-15	5.6-6.5	0	0	0	0
	5-15	10-15	5.6-6.5	0	0	0	0
	15-22	10-18	5.6-6.5	0	0	0	0
	22-60	15-25	5.6-7.3	0	0	0	0
25C:							
Leidl-----	0-5	10-20	6.1-7.3	0	0	0	0
	5-12	15-30	6.1-7.3	0	0	0	0
	12-25	15-30	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
Dillcourt-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-22	10-20	5.6-6.5	0	0	0	0
	22-60	10-20	5.6-6.5	0	0	0	0
26:							
Mazdale-----	0-6	10-20	5.1-6.0	0	0	0	0
	6-12	8.0-18	5.1-6.0	0	0	0	0
	12-28	10-15	5.6-6.5	0	0	0	0
	28-60	10-20	5.6-6.5	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
26C:							
Mazdale-----	0-6	10-20	5.1-6.0	0	0	0	0
	6-12	8.0-18	5.1-6.0	0	0	0	0
	12-28	10-15	5.6-6.5	0	0	0	0
	28-60	10-20	5.6-6.5	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
26E:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
Mazdale-----	0-6	10-20	5.1-6.0	0	0	0	0
	6-12	8.0-18	5.1-6.0	0	0	0	0
	12-28	10-15	5.6-6.5	0	0	0	0
	28-60	10-20	5.6-6.5	0	0	0	0
27B:							
Yedlick-----	0-5	5.0-20	6.1-6.5	0	0	0	0
	5-13	5.0-18	6.1-6.5	0	0	0	0
	13-60	15-25	6.1-6.5	0	0	0	0
28:							
Trelk-----	0-10	10-20	5.6-7.3	0	0	0	0
	10-17	10-20	5.6-7.3	0	0	0	0
	17-33	15-25	5.6-7.3	0	0	0	0
	33-60	10-20	5.6-7.3	0	0	0	0
30:							
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
Kiakus-----	0-21	15-25	6.1-6.5	0	0	0	0
	21-38	15-30	6.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---
30A:							
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
Lorena-----	0-11	10-20	5.6-6.5	0	0	0	0
	11-33	10-20	6.1-7.3	0	0	0	0
	33-37	---	---	---	---	---	---
30B:							
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
Lorena-----	0-17	10-20	5.6-6.5	0	0	0	0
	17-32	10-20	6.1-7.3	0	0	0	0
	32-36	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
32A:							
Beezee-----	0-10	14-20	5.6-6.5	0	0	0	0
	10-18	10-16	5.6-6.5	0	0	0	0
	18-33	15-25	5.6-6.5	0	0	0	0
	33-60	15-25	5.6-6.5	0	0	0	0
32B:							
Beezee-----	0-10	14-20	5.6-6.5	0	0	0	0
	10-18	10-16	5.6-6.5	0	0	0	0
	18-33	15-25	5.6-6.5	0	0	0	0
	33-60	15-25	5.6-6.5	0	0	0	0
33:							
Riverwash-----	0-60	---	---	---	---	---	---
33A:							
Haploxerolls-----	0-10	3.0-10	6.6-7.8	0	0	0	0
	10-24	3.0-10	6.6-7.8	0	0	0	0
	24-41	2.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	41-60	0.0-2.0	6.6-7.8	0-10	0	0.0-2.0	0
Fluvaquents-----	0-6	10-20	6.6-8.4	0-5	0	0.0-2.0	0
	6-32	8.0-28	6.6-7.8	0-5	0	0.0-2.0	0
	32-60	0.0-25	6.6-7.8	0-5	0	0.0-2.0	0
36:							
Jebe-----	0-5	15-20	5.1-6.0	0	0	0	0
	5-31	12-20	5.6-6.5	0	0	0	0
	31-60	15-20	5.6-6.5	0	0	0	0
36C:							
Jebe-----	0-5	15-20	5.1-6.0	0	0	0	0
	5-31	12-20	5.6-6.5	0	0	0	0
	31-60	15-20	5.6-6.5	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
39A:							
Hyprairie-----	0-7	12-22	5.6-6.5	0	0	0	0
	7-25	10-18	5.6-6.5	0	0	0	0
	25-48	14-24	6.1-7.3	0	0	0	0
	48-60	14-25	6.1-7.3	0	0	0	0
39B:							
Hyprairie-----	0-7	12-22	5.6-6.5	0	0	0	0
	7-25	10-18	5.6-6.5	0	0	0	0
	25-48	14-24	6.1-7.3	0	0	0	0
	48-60	14-25	6.1-7.3	0	0	0	0
39C:							
Hyprairie-----	0-16	12-22	5.6-6.5	0	0	0	0
	16-23	10-18	5.6-6.5	0	0	0	0
	23-40	14-24	6.1-7.3	0	0	0	0
	40-60	14-25	6.1-7.3	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
39D:							
Hyprairie-----	0-16	12-22	5.6-6.5	0	0	0	0
	16-23	10-18	5.6-6.5	0	0	0	0
	23-40	14-24	6.1-7.3	0	0	0	0
	40-60	14-25	6.1-7.3	0	0	0	0
41:							
Oreoke-----	0-5	10-15	5.6-6.5	0	0	0	0
	5-15	10-15	5.6-6.5	0	0	0	0
	15-22	10-18	5.6-6.5	0	0	0	0
	22-60	15-25	5.6-7.3	0	0	0	0
Legall-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-40	10-20	5.6-6.5	0	0	0	0
	40-60	15-25	5.6-6.5	0	0	0	0
42:							
Oreoke-----	0-5	10-15	5.6-6.5	0	0	0	0
	5-15	10-15	5.6-6.5	0	0	0	0
	15-22	10-18	5.6-6.5	0	0	0	0
	22-60	15-25	5.6-7.3	0	0	0	0
Beezee-----	0-10	14-20	5.6-6.5	0	0	0	0
	10-18	10-16	5.6-6.5	0	0	0	0
	18-33	15-25	5.6-6.5	0	0	0	0
	33-60	15-25	5.6-6.5	0	0	0	0
43:							
Oreoke-----	0-5	10-15	5.6-6.5	0	0	0	0
	5-15	10-15	5.6-6.5	0	0	0	0
	15-22	10-18	5.6-6.5	0	0	0	0
	22-60	15-25	5.6-7.3	0	0	0	0
Colockum-----	0-20	10-20	6.6-7.8	0	0	0	0
	20-34	10-20	6.6-7.8	0	0	0	0
	34-46	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	46-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
49A:							
Kiakus-----	0-16	15-25	6.1-6.5	0	0	0	0
	16-29	15-30	6.1-7.3	0	0	0	0
	29-38	20-25	6.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---
49B:							
Kiakus-----	0-16	15-25	6.1-6.5	0	0	0	0
	16-29	15-30	6.1-7.3	0	0	0	0
	29-38	20-25	6.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---
49C:							
Kiakus-----	0-16	15-25	6.1-6.5	0	0	0	0
	16-29	15-30	6.1-7.3	0	0	0	0
	29-38	20-25	6.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---
49D:							
Kiakus-----	0-16	15-25	6.1-6.5	0	0	0	0
	16-29	15-30	6.1-7.3	0	0	0	0
	29-38	20-25	6.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
49E:							
Kiakus-----	0-16	15-25	6.1-6.5	0	0	0	0
	16-29	15-30	6.1-7.3	0	0	0	0
	29-38	20-25	6.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
55:							
Firoke-----	0-6	5.0-20	5.6-6.5	0	0	0	0
	6-19	1.0-10	5.6-6.5	0	0	0	0
	19-60	1.0-8.0	5.6-6.5	0	0	0	0
55A:							
Kingtain-----	0-2	8.0-22	5.6-7.3	0	0	0	0
	2-10	5.0-15	6.1-7.3	0	0	0	0
	10-49	5.0-10	6.1-7.3	0	0	0	0
	49-60	15-20	5.6-7.3	0	0	0	0
57:							
Firoke-----	0-6	5.0-20	5.6-6.5	0	0	0	0
	6-19	1.0-10	5.6-6.5	0	0	0	0
	19-60	1.0-8.0	5.6-6.5	0	0	0	0
59B:							
Bercumb-----	0-4	5.0-15	5.6-6.5	0	0	0	0
	4-10	5.0-12	5.6-6.5	0	0	0	0
	10-29	5.0-12	5.6-6.5	0	0	0	0
	29-53	5.0-10	5.6-6.5	0	0	0	0
	53-60	5.0-10	5.6-7.3	0	0	0	0
59C:							
Bercumb-----	0-3	5.0-15	5.6-6.5	0	0	0	0
	3-11	5.0-12	5.6-6.5	0	0	0	0
	11-30	5.0-12	5.6-6.5	0	0	0	0
	30-60	5.0-10	5.6-6.5	0	0	0	0
59D:							
Bercumb-----	0-6	5.0-15	5.6-6.5	0	0	0	0
	6-12	5.0-12	5.6-6.5	0	0	0	0
	12-28	5.0-12	5.6-6.5	0	0	0	0
	28-60	5.0-10	5.6-6.5	0	0	0	0
61:							
Grayland-----	0-8	25-40	5.1-6.0	0	0	0	0
	8-15	20-30	6.1-7.3	0	0	0	0
	15-24	25-45	6.1-7.3	0	0	0	0
	24-60	8.0-15	6.6-7.8	0	0	0	0
63:							
Fanal-----	0-4	10-18	5.6-6.5	0	0	0	0
	4-12	8.0-15	5.6-6.5	0	0	0	0
	12-44	8.0-15	6.1-6.5	0	0	0	0
	44-60	10-20	6.1-7.3	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
65: Leidl-----	0-5	10-20	6.1-7.3	0	0	0	0
	5-12	15-30	6.1-7.3	0	0	0	0
	12-25	15-30	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
65B: Dystroxerepts-----	0-4	10-20	5.6-6.5	0	0	0	0
	4-10	10-20	5.6-6.5	0	0	0	0
	10-20	10-18	5.6-6.5	0	0	0	0
	20-24	---	---	---	---	---	---
66: Flotag-----	0-19	5.0-10	5.6-6.0	0	0	0	0
	19-34	5.0-10	5.6-6.0	0	0	0	0
	34-60	5.0-10	5.1-6.0	0	0	0	0
68: Fluvaquentic Endoaquolls-----	0-20	5.0-15	5.6-6.5	0	0	0	0
	20-30	5.0-15	5.6-6.5	0	0	0	0
	30-60	5.0-10	5.6-6.5	0	0	0	0
69: Goldendale-----	0-10	8.0-16	5.6-6.5	0	0	0	0
	10-15	8.0-18	6.1-7.3	0	0	0	0
	15-45	15-25	6.1-7.3	0	0	0	0
	45-49	---	---	---	---	---	---
69A: Goldendale-----	0-10	8.0-16	5.6-6.5	0	0	0	0
	10-15	8.0-18	6.1-7.3	0	0	0	0
	15-45	15-25	6.1-7.3	0	0	0	0
	45-49	---	---	---	---	---	---
69B: Goldendale-----	0-10	8.0-16	5.6-6.5	0	0	0	0
	10-15	8.0-18	6.1-7.3	0	0	0	0
	15-45	15-25	6.1-7.3	0	0	0	0
	45-49	---	---	---	---	---	---
69C: Goldendale-----	0-10	8.0-16	5.6-6.5	0	0	0	0
	10-15	8.0-18	6.1-7.3	0	0	0	0
	15-45	15-25	6.1-7.3	0	0	0	0
	45-49	---	---	---	---	---	---
72: Aqualfs-----	0-6	10-25	5.6-6.5	0	0	0	0
	6-13	20-35	5.6-6.5	0	0	0	0
	13-27	20-30	5.6-6.5	0	0	0	0
	27-60	20-30	6.1-7.3	0	0	0	0
73A: Dalig-----	0-15	12-22	6.1-6.5	0	0	0	0
	15-60	18-25	5.6-6.5	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
73B:							
Dalig-----	0-15	12-22	6.1-6.5	0	0	0	0
	15-60	18-25	5.6-6.5	0	0	0	0
73C:							
Dalig-----	0-15	12-22	6.1-6.5	0	0	0	0
	15-60	18-25	5.6-6.5	0	0	0	0
74A:							
Tigit-----	0-6	8.0-20	5.6-6.5	0	0	0	0
	6-15	5.0-15	5.6-6.5	0	0	0	0
	15-39	15-20	5.6-6.5	0	0	0	0
	39-49	---	---	---	---	---	---
74B:							
Tigit-----	0-6	8.0-20	5.6-6.5	0	0	0	0
	6-15	5.0-15	5.6-6.5	0	0	0	0
	15-39	15-20	5.6-6.5	0	0	0	0
	39-49	---	---	---	---	---	---
74C:							
Tigit-----	0-6	8.0-20	5.6-6.5	0	0	0	0
	6-15	5.0-15	5.6-6.5	0	0	0	0
	15-39	15-20	5.6-6.5	0	0	0	0
	39-49	---	---	---	---	---	---
76:							
Underwood-----	0-7	15-25	6.1-6.5	0	0	0	0
	7-37	20-30	5.6-6.5	0	0	0	0
	37-60	15-20	5.1-6.0	0	0	0	0
76A:							
Underwood-----	0-7	15-25	6.1-6.5	0	0	0	0
	7-37	20-30	5.6-6.5	0	0	0	0
	37-60	15-20	5.1-6.0	0	0	0	0
76B:							
Underwood-----	0-7	15-25	6.1-6.5	0	0	0	0
	7-37	20-30	5.6-6.5	0	0	0	0
	37-60	15-20	5.1-6.0	0	0	0	0
76C:							
Underwood-----	0-14	15-25	6.6-7.3	0	0	0	0
	14-60	20-30	5.6-6.5	0	0	0	0
77:							
McGowan-----	0-10	10-20	5.6-6.5	0	0	0	0
	10-15	10-15	5.6-6.5	0	0	0	0
	15-42	10-15	5.6-6.5	0	0	0	0
	42-60	10-15	5.6-6.5	0	0	0	0
77A:							
McGowan-----	0-10	10-20	5.6-6.5	0	0	0	0
	10-15	10-15	5.6-6.5	0	0	0	0
	15-42	10-15	5.6-6.5	0	0	0	0
	42-60	10-15	5.6-6.5	0	0	0	0
80:							
Troutlake-----	0-10	10-20	5.6-6.5	0	0	0	0
	10-21	10-20	5.6-6.5	0	0	0	0
	21-60	15-20	5.6-6.5	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
81: Sugarbowl-----	0-4	10-20	5.6-7.3	0	0	0	0
	4-41	5.0-15	5.6-7.3	0	0	0	0
	41-60	5.0-10	5.6-7.3	0	0	0	0
82B: Kingtain-----	0-15	10-20	5.6-7.3	0	0	0	0
	15-49	5.0-15	6.1-7.3	0	0	0	0
	49-60	15-20	5.6-7.3	0	0	0	0
82D: Kingtain-----	0-16	10-20	5.6-7.3	0	0	0	0
	16-49	5.0-15	6.1-7.3	0	0	0	0
	49-60	15-20	5.6-7.3	0	0	0	0
82E: Kingtain-----	0-12	8.0-22	5.6-7.3	0	0	0	0
	12-49	5.0-15	6.1-7.3	0	0	0	0
	49-60	15-20	5.6-7.3	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
83: Volash-----	0-12	10-20	6.1-7.3	0	0	0	0
	12-25	8.0-18	6.1-7.3	0	0	0	0
	25-48	8.0-14	6.1-7.3	0	0	0	0
	48-52	---	---	---	---	---	---
84: Trouter-----	0-4	10-20	6.1-7.3	0	0	0	0
	4-29	5.0-18	6.1-7.3	0	0	0	0
	29-33	---	---	---	---	---	---
84A: Trouter-----	0-4	10-20	6.1-7.3	0	0	0	0
	4-29	5.0-18	6.1-7.3	0	0	0	0
	29-33	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
86A: Chemawa-----	0-26	1.0-10	6.1-7.3	0	0	0	0
	26-60	1.0-10	5.6-7.3	0	0	0	0
86B: Chemawa-----	0-26	1.0-10	6.1-7.3	0	0	0	0
	26-60	1.0-10	5.6-7.3	0	0	0	0
86C: Chemawa-----	0-26	1.0-10	6.1-7.3	0	0	0	0
	26-60	1.0-10	5.6-7.3	0	0	0	0
86D: Chemawa-----	0-26	1.0-10	6.1-7.3	0	0	0	0
	26-60	1.0-10	6.1-7.3	0	0	0	0
87A: Eagreek-----	0-19	10-20	6.1-7.3	0	0	0	0
	19-60	10-20	5.1-6.0	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
88A:							
Timberhead-----	0-28	10-18	5.6-6.0	0	0	0	0
	28-42	8.0-15	5.1-6.0	0	0	0	0
	42-60	8.0-15	5.1-6.0	0	0	0	0
88B:							
Timberhead-----	0-28	10-18	5.6-6.0	0	0	0	0
	28-42	8.0-15	5.1-6.0	0	0	0	0
	42-60	8.0-15	5.1-6.0	0	0	0	0
89:							
McElroy-----	0-11	10-20	5.6-6.5	0	0	0	0
	11-23	10-20	5.6-6.5	0	0	0	0
	23-60	10-20	5.6-6.5	0	0	0	0
89B:							
McElroy-----	0-11	10-20	5.6-6.5	0	0	0	0
	11-23	10-20	5.6-6.5	0	0	0	0
	23-60	10-20	5.6-6.5	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
90:							
Hood-----	0-15	5.0-15	5.6-6.5	0	0	0	0
	15-60	5.0-15	5.6-6.5	0	0	0	0
90A:							
Hood-----	0-15	5.0-15	5.6-6.5	0	0	0	0
	15-60	5.0-15	5.6-6.5	0	0	0	0
90B:							
Hood-----	0-10	5.0-15	5.6-6.5	0	0	0	0
	10-60	5.0-15	5.6-6.5	0	0	0	0
90C:							
Hood-----	0-7	5.0-15	5.6-6.5	0	0	0	0
	7-60	5.0-15	5.6-6.5	0	0	0	0
92:							
Husum-----	0-10	5.0-15	5.6-6.5	0	0	0	0
	10-28	5.0-15	5.6-6.5	0	0	0	0
	28-60	5.0-10	5.6-6.5	0	0	0	0
92A:							
Husum-----	0-15	5.0-15	5.6-6.5	0	0	0	0
	15-36	5.0-15	5.6-6.5	0	0	0	0
	36-60	5.0-10	5.6-6.5	0	0	0	0
92B:							
Husum-----	0-10	5.0-15	5.6-6.5	0	0	0	0
	10-32	5.0-15	5.6-6.5	0	0	0	0
	32-60	5.0-10	5.6-6.5	0	0	0	0
93:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
93A: Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
93B: Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
93C: Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
93D: Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
94: Lorena-----	0-16	10-20	5.6-6.5	0	0	0	0
	16-31	10-20	6.1-7.3	0	0	0	0
	31-36	10-20	6.1-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
94A: Lorena-----	0-16	10-20	5.6-6.5	0	0	0	0
	16-31	10-20	6.1-7.3	0	0	0	0
	31-36	10-20	6.1-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
94B: Lorena-----	0-16	10-20	5.6-6.5	0	0	0	0
	16-31	10-20	6.1-7.3	0	0	0	0
	31-36	10-20	6.1-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
94C: Lorena-----	0-10	10-20	5.6-6.5	0	0	0	0
	10-25	10-20	6.1-7.3	0	0	0	0
	25-34	10-20	6.1-7.3	0	0	0	0
	34-38	---	---	---	---	---	---
94E: Lorena-----	0-10	10-20	5.6-6.5	0	0	0	0
	10-25	10-20	6.1-7.3	0	0	0	0
	25-30	10-20	6.1-7.3	0	0	0	0
	30-34	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
95: Konert-----	0-8	10-15	6.6-7.3	0	0	0	0
	8-45	5.0-10	6.6-7.3	0	0	0	0
	45-60	5.0-10	6.6-7.3	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
95A:							
Konert-----	0-17	10-15	6.6-7.3	0	0	0	0
	17-60	5.0-10	6.6-7.3	0	0	0	0
96:							
Blockhouse-----	0-12	15-25	6.1-7.3	0	0	0	0
	12-29	15-30	6.1-7.3	0	0	0	0
	29-60	18-25	6.1-7.3	0	0	0	0
97:							
Munset-----	0-2	10-20	5.6-6.5	0	0	0	0
	2-16	15-25	5.6-6.5	0	0	0	0
	16-22	15-30	5.6-6.0	0	0	0	0
	22-25	10-20	5.6-6.0	0	0	0	0
	25-29	---	---	---	---	---	---
97A:							
Setnum-----	0-10	10-20	5.6-6.5	0	0	0	0
	10-17	15-20	6.1-7.3	0	0	0	0
	17-31	25-30	6.1-7.3	0	0	0	0
	31-39	15-20	6.1-7.3	0	0	0	0
	39-43	---	---	---	---	---	---
97B:							
Blockhouse-----	0-12	15-25	6.1-7.3	0	0	0	0
	12-29	15-30	6.1-7.3	0	0	0	0
	29-60	18-25	6.1-7.3	0	0	0	0
Munset-----	0-2	10-20	5.6-6.5	0	0	0	0
	2-16	15-25	5.6-6.5	0	0	0	0
	16-22	15-30	5.6-6.0	0	0	0	0
	22-25	10-20	5.6-6.0	0	0	0	0
	25-29	---	---	---	---	---	---
99:							
Dallesport-----	0-11	5.0-10	6.6-7.3	0	0	0	0
	11-20	3.0-8.0	6.6-7.8	0	0	0	0
	20-25	2.0-5.0	6.6-7.8	0	0	0	0
	25-60	0.0-4.0	6.6-8.4	0	0	0	0
100:							
Dallesport-----	0-3	5.0-10	6.6-7.3	0	0	0	0
	3-11	5.0-10	6.6-7.3	0	0	0	0
	11-19	3.0-8.0	6.6-7.8	0	0	0	0
	19-24	2.0-5.0	6.6-7.8	0	0	0	0
	24-60	0.0-4.0	6.6-8.4	0	0	0	0
101:							
Dallesport-----	0-3	5.0-10	6.6-7.3	0	0	0	0
	3-11	5.0-10	6.6-7.3	0	0	0	0
	11-19	3.0-8.0	6.6-7.8	0	0	0	0
	19-24	2.0-5.0	6.6-7.8	0	0	0	0
	24-60	0.0-4.0	6.6-8.4	0	0	0	0
102:							
Dallesport-----	0-10	5.0-10	6.6-7.3	0	0	0	0
	10-20	3.0-8.0	6.6-7.8	0	0	0	0
	20-24	2.0-5.0	6.6-7.8	0	0	0	0
	24-60	0.0-4.0	6.6-8.4	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
103:							
Dallesport-----	0-3	5.0-10	6.6-7.3	0	0	0	0
	3-11	5.0-10	6.6-7.3	0	0	0	0
	11-19	3.0-8.0	6.6-7.8	0	0	0	0
	19-24	2.0-5.0	6.6-7.8	0	0	0	0
	24-60	0.0-4.0	6.6-8.4	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
104:							
Dallesport-----	0-3	5.0-10	6.6-7.3	0	0	0	0
	3-11	5.0-10	6.6-7.3	0	0	0	0
	11-19	3.0-8.0	6.6-7.8	0	0	0	0
	19-24	2.0-5.0	6.6-7.8	0	0	0	0
	24-60	0.0-4.0	6.6-8.4	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
105:							
Ewall-----	0-14	1.0-3.0	6.6-7.3	0	0	0	0
	14-60	1.0-2.0	6.6-7.8	0	0	0	0
106:							
Ewall-----	0-14	1.0-3.0	6.6-7.3	0	0	0	0
	14-60	1.0-2.0	6.6-7.8	0	0	0	0
107:							
Ewall-----	0-13	1.0-3.0	6.6-7.3	0	0	0	0
	13-60	1.0-2.0	6.6-7.8	0	0	0	0
108:							
Ewall-----	0-13	1.0-3.0	6.6-7.3	0	0	0	0
	13-60	1.0-2.0	6.6-7.8	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
109:							
Ewall-----	0-11	1.0-3.0	6.6-7.3	0	0	0	0
	11-60	1.0-2.0	6.6-7.8	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
113B:							
Tekison-----	0-8	10-20	5.6-7.3	0	0	0	0
	8-18	20-30	5.6-6.5	0	0	0	0
	18-44	20-30	5.6-6.5	0	0	0	0
	44-60	20-25	5.6-6.5	0	0	0	0
113C:							
Tekison-----	0-8	10-20	5.6-7.3	0	0	0	0
	8-18	20-30	5.6-6.5	0	0	0	0
	18-44	20-30	5.6-6.5	0	0	0	0
	44-60	20-25	5.6-6.5	0	0	0	0
115:							
Aquolls-----	0-9	10-25	5.6-6.0	0	0	0	0
	9-26	15-25	5.6-6.0	0	0	0	0
	26-32	10-20	5.6-6.0	0	0	0	0
	32-45	10-25	5.6-6.5	0	0	0	0
	45-49	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
116:							
Aquolls-----	0-9	10-25	5.6-6.0	0	0	0	0
	9-26	15-25	5.6-6.0	0	0	0	0
	26-32	10-20	5.6-6.0	0	0	0	0
	32-45	10-25	5.6-6.5	0	0	0	0
	45-49	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
120:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Haploxerolls-----	0-4	3.0-10	6.6-7.8	0	0	0	0
	4-15	3.0-10	6.6-7.8	0-5	0	0.0-2.0	0
	15-19	3.0-10	---	---	---	---	---
121:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Haploxerolls-----	0-13	2.0-9.0	6.6-7.8	0-5	0	0.0-2.0	0
	13-60	1.0-5.0	6.6-7.8	0-10	0	0.0-2.0	0
122:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Haploxerolls-----	0-13	2.0-9.0	6.6-7.8	0-5	0	0.0-2.0	0
	13-60	1.0-5.0	6.6-7.8	0-10	0	0.0-2.0	0
123A:							
Galiente-----	0-16	10-20	5.6-7.3	0	0	0	0
	16-60	24-38	4.5-5.5	0	0	0	0
125:							
Scooteney-----	0-6	4.0-9.0	6.6-7.3	0	0	0	0
	6-22	3.0-6.0	6.6-7.8	0	0	0	0
	22-33	3.0-6.0	7.9-8.4	5-10	0	0.0-2.0	0
	33-60	0.0-3.0	7.9-8.4	5-10	0	0.0-2.0	0
127:							
Scooteney-----	0-6	4.0-9.0	6.6-7.3	0	0	0	0
	6-22	3.0-6.0	6.6-7.8	0	0	0	0
	22-33	3.0-6.0	7.9-8.4	5-10	0	0.0-2.0	0
	33-60	0.0-3.0	7.9-8.4	5-10	0	0.0-2.0	0
130:							
Oxy-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-21	12-25	6.6-7.8	0	0	0	0
	21-25	---	---	---	---	---	---
131:							
Onyx-----	0-8	10-20	6.6-7.8	0	0	0	0
	8-21	8.0-18	6.6-7.8	0	0	0	0
	21-49	8.0-18	6.6-7.8	0	0	0	0
	49-60	8.0-15	6.6-7.8	0	0	0	0
132:							
Esquatzel-----	0-17	5.0-10	6.6-7.8	0	0	0	0
	17-60	5.0-10	7.4-8.4	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
136: Bickleton-----	0-19	10-20	6.6-7.8	0	0	0	0
	19-30	10-20	6.6-7.8	0	0	0	0
	30-44	10-20	6.6-8.4	1-5	0	0.0-2.0	0
	44-52	10-20	7.9-9.0	15-35	0	0.0-2.0	0
	52-56	---	---	---	---	---	---
137: Bickleton-----	0-19	10-20	6.6-7.8	0	0	0	0
	19-30	10-20	6.6-7.8	0	0	0	0
	30-44	10-20	6.6-8.4	1-5	0	0.0-2.0	0
	44-52	10-20	7.9-9.0	15-35	0	0.0-2.0	0
	52-56	---	---	---	---	---	---
140: Broadax-----	0-17	11-18	6.6-7.8	0	0	0	0
	17-38	18-33	7.4-8.4	0	0	0	0
	38-60	13-22	7.9-9.0	5-15	0	0.0-2.0	0
141: Broadax-----	0-17	11-18	6.6-7.8	0	0	0	0
	17-38	18-33	7.4-8.4	0	0	0	0
	38-60	13-22	7.9-9.0	5-15	0	0.0-2.0	0
150: Morrow-----	0-16	10-20	6.6-7.3	0	0	0	0
	16-31	10-20	6.6-8.4	0	0	0	0
	31-38	10-20	7.9-9.0	15-35	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
151: Morrow-----	0-16	10-20	6.6-7.3	0	0	0	0
	16-31	10-20	6.6-8.4	0	0	0	0
	31-38	10-20	7.9-9.0	15-35	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
155: Morrow-----	0-16	10-20	6.6-7.3	0	0	0	0
	16-31	10-20	6.6-8.4	0	0	0	0
	31-38	10-20	7.9-9.0	15-35	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
159B: Panak-----	0-7	10-20	5.6-6.5	0	0	0	0
	7-19	10-20	5.6-6.5	0	0	0	0
	19-42	10-20	5.6-6.5	0	0	0	0
	42-60	20-30	5.6-6.5	0	0	0	0
159C: Panak-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-26	10-20	5.6-6.5	0	0	0	0
	26-42	10-20	5.6-6.5	0	0	0	0
	42-60	20-30	5.6-6.5	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
159D:							
Panak-----	0-8	10-20	5.6-6.5	0	0	0	0
	8-26	10-20	5.6-6.5	0	0	0	0
	26-42	10-20	5.6-6.5	0	0	0	0
	42-60	20-30	5.6-6.5	0	0	0	0
161:							
Van Nostern-----	0-17	10-15	6.1-7.3	0	0	0	0
	17-35	15-20	6.6-7.8	0	0	0	0
	35-39	---	---	---	---	---	---
181:							
Umapine-----	0-20	10-20	8.5-9.5	10-20	0	4.0-8.0	10-20
	20-60	10-20	7.4-9.5	10-20	0	4.0-8.0	10-15
187:							
Cleman-----	0-10	5.0-10	6.6-7.8	0	0	0	0
	10-43	5.0-10	6.6-7.8	0	0	0	0
	43-60	5.0-10	6.6-8.4	1-5	0	0.0-2.0	0
190:							
Weirman-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	5.0-10	6.6-7.8	0	0	0	0
	10-60	5.0-10	6.6-7.8	0	0	0	0
193:							
Swalecreek-----	0-18	15-20	5.6-7.3	0	0	0	0
	18-31	20-25	6.1-7.3	0	0	0	0
	31-60	20-25	6.1-7.3	0	0	0	0
194:							
Swalecreek-----	0-18	15-20	5.6-7.3	0	0	0	0
	18-31	20-25	6.1-7.3	0	0	0	0
	31-60	20-25	6.1-7.3	0	0	0	0
195:							
Swalecreek-----	0-18	15-20	5.6-7.3	0	0	0	0
	18-31	20-25	6.1-7.3	0	0	0	0
	31-60	20-25	6.1-7.3	0	0	0	0
Niva-----	0-12	10-20	6.1-6.5	0	0	0	0
	12-17	5.0-10	6.1-7.3	0	0	0	0
	17-27	---	---	---	---	---	---
196:							
Mondovi-----	0-6	10-20	6.1-7.3	0	0	0	0
	6-60	5.0-20	6.6-7.3	0	0	0	0
200:							
Malaga-----	0-3	10-20	6.1-7.8	0	0	0	0
	3-17	10-20	6.1-7.8	0	0	0	0
	17-21	10-20	6.1-7.8	0	0	0	0
	21-60	5.0-10	6.1-8.4	0-3	0	0.0-2.0	0
211:							
Hezel-----	0-5	5.0-10	6.6-8.4	0	0	0	0
	5-17	5.0-10	6.6-8.4	0	0	0	0
	17-60	5.0-10	7.4-9.0	5-20	0	0.0-2.0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
212: Hezel-----	0-5	5.0-10	6.6-8.4	0	0	0	0
	5-17	5.0-10	6.6-8.4	0	0	0	0
	17-60	5.0-10	7.4-9.0	5-20	0	0.0-2.0	0
213: Hezel-----	0-5	5.0-10	6.6-8.4	0	0	0	0
	5-17	5.0-10	6.6-8.4	0	0	0	0
	17-60	5.0-10	7.4-9.0	5-20	0	0.0-2.0	0
225: Kiona-----	0-9	5.0-10	7.4-7.8	0	0	0	0
	9-25	5.0-10	7.4-8.4	0	0	0	0
	25-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
226: Kiona-----	0-9	10-20	7.4-7.8	0	0	0	0
	9-25	5.0-10	7.4-8.4	0	0	0	0
	25-60	0.0-0.0	7.4-8.4	1-5	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
227: Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
228: Borfin-----	0-7	20-35	6.6-7.8	0	0	0	0
	7-18	30-45	6.6-7.8	0	0	0	0
	18-24	18-32	7.4-8.4	1-5	0	0.0-2.0	0
	24-34	---	---	---	---	---	---
	34-38	---	---	---	---	---	---
229: Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
Wipple-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-23	10-20	6.6-7.8	0	0	0	0
	23-40	20-30	7.4-8.4	0-5	0	0.0-2.0	0-2
	40-60	15-25	7.4-8.4	0-5	0	0.0-2.0	0-2
Rock outcrop-----	0-60	---	---	---	---	---	---
230: Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
Ralls-----	0-5	10-20	7.4-8.4	0	0	0	0
	5-17	10-20	7.4-8.4	0	0	0	0
	17-36	10-20	7.4-8.4	0	0	0	0
	36-47	10-20	7.4-9.0	1-5	0	0.0-2.0	0
	47-60	10-20	7.4-9.0	1-5	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
240:							
Niva-----	0-7	10-20	6.1-6.5	0	0	0	0
	7-17	5.0-10	6.1-7.3	0	0	0	0
	17-21	---	---	---	---	---	---
	21-31	---	---	---	---	---	---
241:							
Niva-----	0-10	10-20	6.1-6.5	0	0	0	0
	10-19	5.0-10	6.1-7.3	0	0	0	0
	19-30	---	---	---	---	---	---
242:							
Niva-----	0-10	10-20	6.1-6.5	0	0	0	0
	10-16	5.0-10	6.1-7.3	0	0	0	0
	16-26	---	---	---	---	---	---
250:							
Van Nostern-----	0-11	10-15	6.1-7.3	0	0	0	0
	11-34	15-20	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
251:							
Van Nostern-----	0-11	10-15	6.1-7.3	0	0	0	0
	11-34	15-20	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
255:							
Van Nostern-----	0-11	10-15	6.1-7.3	0	0	0	0
	11-34	15-20	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
266:							
Van Nostern-----	0-11	10-15	6.1-7.3	0	0	0	0
	11-34	15-20	6.6-7.8	0	0	0	0
	34-38	---	---	---	---	---	---
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
274:							
Prosser-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-20	10-20	7.4-8.4	0	0	0	0
	20-32	10-20	7.9-8.4	1-15	0	0.0-2.0	0
	32-36	---	---	---	---	---	---
275:							
Prosser-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-20	10-20	7.4-8.4	0	0	0	0
	20-32	10-20	7.9-8.4	1-15	0	0.0-2.0	0
	32-36	---	---	---	---	---	---
277:							
Prosser-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-20	10-20	7.4-8.4	0	0	0	0
	20-32	10-20	7.9-8.4	1-15	0	0.0-2.0	0
	32-36	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
277: Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
280: Quincy-----	0-27	2.0-7.0	6.1-7.8	0	0	0	0
	27-60	1.0-6.0	6.6-8.4	0-3	0	0.0-2.0	0
281: Quincy-----	0-27	2.0-7.0	6.1-7.8	0	0	0	0
	27-60	1.0-6.0	6.6-8.4	0-3	0	0.0-2.0	0
285: Quinton-----	0-23	0.0-5.0	6.6-7.8	0	0	0	0
	23-30	0.0-5.0	6.6-8.4	0-3	0	0.0-2.0	0
	30-34	---	---	---	---	---	---
290: Koehler-----	0-15	5.0-15	7.4-8.4	0	0	0	0
	15-32	5.0-15	7.9-9.0	0-10	0	0.0-2.0	0
	32-36	5.0-15	7.9-9.0	5-15	0	0.0-2.0	0
	36-60	---	---	---	---	---	---
296: Swalecreek-----	0-14	15-20	5.6-7.3	0	0	0	0
	14-60	20-25	6.1-7.3	0	0	0	0
297: Swalecreek-----	0-14	15-20	5.6-7.3	0	0	0	0
	14-60	20-25	6.1-7.3	0	0	0	0
298: Swalecreek-----	0-16	15-20	5.6-7.3	0	0	0	0
	16-60	20-25	6.1-7.3	0	0	0	0
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
299: Swalecreek-----	0-16	15-20	5.6-7.3	0	0	0	0
	16-60	20-25	6.1-7.3	0	0	0	0
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
304: Ritzville-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-39	5.0-10	6.6-7.8	0	0	0	0
	39-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
305: Ritzville-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-39	5.0-10	6.6-7.8	0	0	0	0
	39-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
306: Ritzville-----	0-7	5.0-10	6.6-7.8	0	0	0	0
	7-37	5.0-10	6.6-7.8	0	0	0	0
	37-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
308: Ralls-----	0-5	10-20	7.4-8.4	0	0	0	0
	5-17	10-20	7.4-8.4	0	0	0	0
	17-36	10-20	7.4-8.4	0	0	0	0
	36-47	10-20	7.4-9.0	1-5	0	0.0-2.0	0
	47-60	10-20	7.4-9.0	1-5	0	0.0-2.0	0
317: Reilloc-----	0-3	10-20	6.1-7.3	0	0	0	0
	3-6	10-20	6.1-7.3	0	0	0	0
	6-10	20-30	5.6-6.5	0	0	0	0
	10-13	20-30	5.6-6.5	0	0	0	0
	13-17	---	---	---	---	---	---
Sienna-----	0-4	10-20	6.1-7.3	0	0	0	0
	4-8	10-20	6.1-7.3	0	0	0	0
	8-13	15-25	6.1-7.3	0	0	0	0
	13-24	15-20	6.1-7.3	0	0	0	0
	24-28	---	---	---	---	---	---
318: Sienna-----	0-8	10-20	6.1-7.3	0	0	0	0
	8-18	15-20	6.1-7.3	0	0	0	0
	18-22	15-20	6.1-7.3	0	0	0	0
	22-26	---	---	---	---	---	---
329: Badge-----	0-11	8.0-20	6.6-7.8	0	0	0	0
	11-41	16-24	6.6-7.8	0	0	0	0
	41-60	10-18	7.4-8.4	0-3	0	0.0-4.0	0
330: Badge-----	0-11	8.0-20	6.6-7.8	0	0	0	0
	11-41	16-24	6.6-7.8	0	0	0	0
	41-60	10-18	7.4-8.4	0-3	0	0.0-4.0	0
343: Shano-----	0-7	5.0-10	6.6-8.4	0	0	0	0
	7-34	5.0-12	7.4-8.4	0	0	0.0-2.0	0
	34-60	5.0-14	7.4-9.0	2-15	0	0.0-2.0	0
346: Shano-----	0-7	5.0-10	6.6-8.4	0	0	0	0
	7-34	5.0-12	7.4-8.4	0	0	0.0-2.0	0
	34-60	5.0-14	7.4-9.0	2-15	0	0.0-2.0	0
347: Shano-----	0-7	5.0-10	6.6-8.4	0	0	0	0
	7-34	5.0-12	7.4-8.4	0	0	0.0-2.0	0
	34-60	5.0-14	7.4-9.0	2-15	0	0.0-2.0	0
348: Shano-----	0-7	5.0-10	6.6-8.4	0	0	0	0
	7-34	5.0-12	7.4-8.4	0	0	0.0-2.0	0
	34-60	5.0-14	7.4-9.0	2-15	0	0.0-2.0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
350: Willis-----	0-7	5.0-10	6.6-7.8	0	0	0	0
	7-15	8.0-12	7.4-8.4	0	0	0	0
	15-33	5.0-10	7.9-9.0	1-10	0	0.0-2.0	0
	33-43	---	---	---	---	---	---
351: Willis-----	0-7	2.0-10	6.6-7.8	0	0	0	0
	7-15	8.0-12	7.4-8.4	0	0	0	0
	15-33	5.0-10	7.9-9.0	1-10	0	0.0-2.0	0
	33-43	---	---	---	---	---	---
352: Willis-----	0-7	5.0-10	6.6-7.8	0	0	0	0
	7-15	8.0-12	7.4-8.4	0	0	0	0
	15-33	5.0-10	7.9-9.0	1-10	0	0.0-2.0	0
	33-43	---	---	---	---	---	---
353: Willis-----	0-7	5.0-10	6.6-7.8	0	0	0	0
	7-15	8.0-12	7.4-8.4	0	0	0	0
	15-33	5.0-10	7.9-9.0	1-10	0	0.0-2.0	0
	33-43	---	---	---	---	---	---
360: Selah-----	0-11	10-20	6.6-7.3	0	0	0	0
	11-27	15-25	6.6-7.8	0	0	0	0
	27-39	20-25	7.4-8.4	5-15	0	0.0-2.0	0
	39-50	---	---	---	---	---	---
	50-54	---	---	---	---	---	---
361: Selah-----	0-11	10-20	6.6-7.3	0	0	0	0
	11-27	15-25	6.6-7.8	0	0	0	0
	27-39	20-25	7.4-8.4	5-15	0	0.0-2.0	0
	39-50	---	---	---	---	---	---
	50-54	---	---	---	---	---	---
362: Selah-----	0-11	10-20	6.6-7.3	0	0	0	0
	11-27	15-25	6.6-7.8	0	0	0	0
	27-39	20-25	7.4-8.4	5-15	0	0.0-2.0	0
	39-50	---	---	---	---	---	---
	50-54	---	---	---	---	---	---
365: Selah-----	0-11	10-20	6.6-7.3	0	0	0	0
	11-27	15-25	6.6-7.8	0	0	0	0
	27-39	20-25	7.4-8.4	5-15	0	0.0-2.0	0
	39-50	---	---	---	---	---	---
	50-54	---	---	---	---	---	---
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
374: Thiessen-----	0-6	16-22	6.6-7.3	0	0	0	0
	6-23	24-30	6.6-7.8	0	0	0	0
	23-30	24-32	6.1-7.3	0	0	0	0
	30-34	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
375:							
Lickskillet-----	0-8	5.0-15	6.6-7.8	0	0	0	0
	8-18	10-20	6.6-8.4	0-5	0	0.0-2.0	0
	18-22	---	---	---	---	---	---
376:							
Lickskillet-----	0-8	5.0-15	6.6-7.8	0	0	0	0
	8-18	10-20	6.6-8.4	0-5	0	0.0-2.0	0
	18-22	---	---	---	---	---	---
377:							
Lickskillet-----	0-8	5.0-15	6.6-7.8	0	0	0	0
	8-18	10-20	6.6-8.4	0-5	0	0.0-3.0	0
	18-22	---	---	---	---	---	---
378:							
Starbuck-----	0-3	5.0-10	6.6-7.8	0	0	0	0
	3-13	5.0-12	6.6-7.8	0	0	0	0
	13-17	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
379:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
380:							
Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
Lickskillet-----	0-8	5.0-15	6.6-7.8	0	0	0	0
	8-18	10-20	6.6-8.4	0-5	0	0.0-2.0	0
	18-22	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---
381:							
Ralls-----	0-5	10-20	7.4-8.4	0	0	0	0
	5-17	10-20	7.4-8.4	0	0	0	0
	17-36	10-20	7.4-8.4	0	0	0	0
	36-47	10-20	7.4-9.0	1-5	0	0.0-2.0	0
	47-60	10-20	7.4-9.0	1-5	0	0.0-2.0	0
Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
Lickskillet-----	0-8	5.0-15	6.6-7.8	0	0	0	0
	8-18	10-20	6.6-8.4	0-5	0	0.0-2.0	0
	18-22	---	---	---	---	---	---
390:							
Renslow-----	0-13	10-20	6.6-7.8	0	0	0	0
	13-20	10-20	7.4-8.4	0	0	0	0
	20-60	10-20	7.9-9.0	5-15	0	0.0-4.0	0-1

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
390:							
Ralls-----	0-5	10-20	7.4-8.4	0	0	0	0
	5-17	10-20	7.4-8.4	0	0	0	0
	17-36	10-20	7.4-8.4	0	0	0	0
	36-47	10-20	7.4-9.0	1-5	0	0.0-2.0	0
	47-60	10-20	7.4-9.0	1-5	0	0.0-2.0	0
Wipple-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-12	10-20	6.6-7.8	0	0	0	0
	12-29	20-30	7.4-8.4	0-5	0	0.0-2.0	0-2
	29-60	15-25	7.4-8.4	0-5	0	0.0-2.0	0-2
391:							
Broadax-----	0-17	11-18	6.6-7.8	0	0	0	0
	17-38	18-33	7.4-8.4	0	0	0	0
	38-60	13-22	7.9-9.0	5-15	0	0.0-2.0	0
Colockum-----	0-20	10-20	6.6-7.8	0	0	0	0
	20-34	10-20	6.6-7.8	0	0	0	0
	34-46	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	46-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
Tronsen-----	0-8	10-20	6.6-7.3	0	0	0	0
	8-14	25-35	6.6-7.3	0	0	0	0
	14-60	25-35	6.6-7.8	0	0	0	0
394:							
Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
Ralls-----	0-5	10-20	7.4-8.4	0	0	0	0
	5-17	10-20	7.4-8.4	0	0	0	0
	17-36	10-20	7.4-8.4	0	0	0	0
	36-47	10-20	7.4-9.0	1-5	0	0.0-2.0	0
	47-60	10-20	7.4-9.0	1-5	0	0.0-2.0	0
Wipple-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-15	10-20	6.6-7.8	0	0	0	0
	15-23	20-30	6.6-7.8	0	0	0	0
	23-60	15-25	7.4-8.4	0-5	0	0.0-2.0	0-2
395:							
Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
Ralls-----	0-5	10-20	7.4-8.4	0	0	0	0
	5-17	10-20	7.4-8.4	0	0	0	0
	17-36	10-20	7.4-8.4	0	0	0	0
	36-47	10-20	7.4-9.0	1-5	0	0.0-2.0	0
	47-60	10-20	7.4-9.0	1-5	0	0.0-2.0	0
Wipple-----	0-6	10-20	6.6-7.3	0	0	0	0
	6-15	10-20	6.6-7.8	0	0	0	0
	15-23	20-30	6.6-7.8	0	0	0	0
	23-60	15-25	7.4-8.4	0-5	0	0.0-2.0	0-2

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
396:							
Renslow-----	0-13	10-20	6.6-7.8	0	0	0	0
	13-20	10-20	7.4-8.4	0	0	0	0
	20-60	10-20	7.9-9.0	5-15	0	0.0-4.0	0-1
Ralls-----	0-5	10-20	7.4-8.4	0	0	0	0
	5-17	10-20	7.4-8.4	0	0	0	0
	17-36	10-20	7.4-8.4	0	0	0	0
	36-47	10-20	7.4-9.0	1-5	0	0.0-2.0	0
	47-60	10-20	7.4-9.0	1-5	0	0.0-2.0	0
Wipple-----	0-7	10-20	6.6-7.3	0	0	0	0
	7-12	10-20	6.6-7.8	0	0	0	0
	12-29	20-30	6.6-7.8	0	0	0	0
	29-60	15-25	7.4-8.4	0-5	0	0.0-2.0	0-2
420:							
Endicott-----	0-10	5.0-10	6.6-7.8	0	0	0	0
	10-30	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	30-34	---	---	---	---	---	---
Moxee-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-9	10-20	7.4-8.4	0	0	0	0
	9-11	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	11-21	---	---	---	---	---	---
421:							
Endicott-----	0-12	5.0-10	6.6-7.8	0	0	0	0
	12-33	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	33-37	---	---	---	---	---	---
Moxee-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-9	10-20	7.4-8.4	0	0	0	0
	9-11	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	11-21	---	---	---	---	---	---
422:							
Endicott-----	0-11	5.0-10	6.6-7.8	0	0	0	0
	11-31	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	31-35	---	---	---	---	---	---
Moxee-----	0-5	10-20	6.6-7.8	0	0	0	0
	5-9	10-20	7.4-8.4	0	0	0	0
	9-11	10-20	7.4-8.4	5-15	0	0.0-2.0	0
	11-21	---	---	---	---	---	---
423:							
Endicott-----	0-10	5.0-10	6.6-7.8	0	0	0	0
	10-30	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	30-34	---	---	---	---	---	---
424:							
Endicott-----	0-12	5.0-10	6.6-7.8	0	0	0	0
	12-33	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	33-37	---	---	---	---	---	---
425:							
Endicott-----	0-11	5.0-10	6.6-7.8	0	0	0	0
	11-31	5.0-10	7.4-8.4	0-5	0	0.0-2.0	0
	31-35	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
433: Warden-----	0-4	5.0-15	6.6-7.8	0	0	0	0
	4-21	5.0-10	6.6-7.8	0	0	0	0
	21-60	5.0-10	7.9-9.0	10-30	0	0.0-2.0	0
435: Warden-----	0-4	5.0-15	6.6-7.8	0	0	0	0
	4-21	5.0-10	6.6-7.8	0	0	0	0
	21-60	5.0-10	7.9-9.0	10-30	0	0.0-2.0	0
436: Warden-----	0-4	5.0-15	6.6-7.8	0	0	0	0
	4-21	5.0-10	6.6-7.8	0	0	0	0
	21-60	5.0-10	7.9-9.0	10-30	0	0.0-2.0	0
437: Warden-----	0-3	5.0-15	6.6-7.8	0	0	0	0
	3-15	5.0-10	6.6-7.8	0	0	0	0
	15-60	5.0-10	7.9-9.0	10-30	0	0.0-2.0	0
438: Warden-----	0-3	5.0-15	6.6-7.8	0	0	0	0
	3-15	5.0-10	6.6-7.8	0	0	0	0
	15-60	5.0-10	7.9-9.0	10-30	0	0.0-2.0	0
440: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	6.6-7.8	0	0	0	0
	37-60	10-20	7.9-8.4	0-6	0	0.0-2.0	0
441: Kahlotus-----	0-14	10-20	6.6-7.8	0	0	0	0
	14-33	10-20	6.6-7.8	0	0	0	0
	33-60	10-20	7.9-8.4	0-6	0	0.0-2.0	0
442: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	6.6-7.8	0	0	0	0
	37-60	10-20	7.9-8.4	0-6	0	0.0-2.0	0
443: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	6.6-7.8	0	0	0	0
	37-60	10-20	7.9-8.4	0-6	0	0.0-2.0	0
444: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	6.6-7.8	0	0	0	0
	37-60	10-20	7.9-8.4	0-6	0	0.0-2.0	0
Kennewick-----	0-10	5.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	10-60	5.0-10	7.9-9.0	1-10	0	0.0-4.0	0
445: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	6.6-7.8	0	0	0	0
	37-60	10-20	7.9-8.4	0-6	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
450:							
Kennewick-----	0-10	5.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	10-60	5.0-10	7.9-9.0	1-10	0	0.0-4.0	0
451:							
Kennewick-----	0-10	5.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	10-60	5.0-10	7.9-9.0	1-10	0	0.0-4.0	0
453:							
Kennewick-----	0-10	5.0-10	7.4-8.4	1-10	0	0.0-2.0	0
	10-60	5.0-10	7.9-9.0	1-10	0	0.0-4.0	0
485:							
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
487:							
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
488:							
Camaspatch-----	0-4	12-19	6.1-7.3	0	0	0	0
	4-7	13-19	6.1-7.3	0	0	0	0
	7-15	19-30	6.1-7.3	0	0	0	0
	15-19	---	---	---	---	---	---
489:							
Rock Creek-----	0-2	10-20	6.1-7.3	0	0	0	0
	2-10	15-25	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
495:							
Konner-----	0-22	10-15	6.1-7.3	0	0	0	0
	22-31	10-15	6.1-7.8	0	0	0	0
	31-60	10-15	6.6-7.8	0	0	0	0
533:							
Sagehill-----	0-4	5.0-10	6.6-8.4	0	0	0	0
	4-24	5.0-10	6.6-8.4	0	0	0	0
	24-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
534:							
Sagehill-----	0-4	5.0-10	6.6-8.4	0	0	0	0
	4-24	5.0-10	6.6-8.4	0	0	0	0
	24-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
535:							
Sagehill-----	0-4	5.0-10	6.6-8.4	0	0	0	0
	4-24	5.0-10	6.6-8.4	0	0	0	0
	24-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
Kiona-----	0-7	5.0-10	7.4-7.8	0	0	0	0
	7-25	5.0-10	7.4-8.4	0	0	0	0
	25-60	5.0-10	7.4-8.4	1-5	0	0.0-2.0	0
536:							
Sagehill-----	0-4	5.0-10	6.6-8.4	0	0	0	0
	4-24	5.0-10	6.6-8.4	0	0	0	0
	24-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
537: Sagehill-----	0-4	5.0-10	6.6-8.4	0	0	0	0
	4-24	5.0-10	6.6-8.4	0	0	0	0
	24-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
538: Sagehill-----	0-4	5.0-10	6.6-8.4	0	0	0	0
	4-24	5.0-10	6.6-8.4	0	0	0	0
	24-60	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
540: Walla Walla-----	0-11	10-15	6.6-7.8	0	0	0	0
	11-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0
541: Walla Walla-----	0-11	10-15	6.6-7.8	0	0	0	0
	11-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0
542: Walla Walla-----	0-11	10-15	6.6-7.8	0	0	0	0
	11-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0
543: Walla Walla-----	0-11	10-15	6.6-7.8	0	0	0	0
	11-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0
550: Walla Walla-----	0-11	10-15	6.6-7.8	0	0	0	0
	11-40	10-15	6.6-7.8	0	0	0	0
	40-50	10-15	7.4-9.0	5-10	0	0.0-2.0	0
	50-60	---	---	---	---	---	---
551: Walla Walla-----	0-11	10-15	6.6-7.8	0	0	0	0
	11-40	10-15	6.6-7.8	0	0	0	0
	40-50	10-15	7.4-9.0	5-10	0	0.0-2.0	0
	50-60	---	---	---	---	---	---
552: Walla Walla-----	0-11	10-15	6.6-7.8	0	0	0	0
	11-40	10-15	6.6-7.8	0	0	0	0
	40-50	10-15	7.4-9.0	5-10	0	0.0-2.0	0
	50-60	---	---	---	---	---	---
555: Walla Walla-----	0-15	8.0-12	6.6-7.8	0	0	0	0
	15-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0
556: Walla Walla-----	0-15	8.0-12	6.6-7.8	0	0	0	0
	15-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
557: Walla Walla-----	0-15	8.0-12	6.6-7.8	0	0	0	0
	15-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0
558: Walla Walla-----	0-15	8.0-12	6.6-7.8	0	0	0	0
	15-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0
560: Olex-----	0-10	10-20	6.6-7.3	0	0	0	0
	10-16	10-20	6.6-7.3	0	0	0	0
	16-25	10-20	7.4-8.4	0	0	0	0
	25-60	10-20	7.4-8.4	10-15	0	0.0-2.0	0
561: Olex-----	0-9	10-20	6.6-7.3	0	0	0	0
	9-20	10-20	6.6-7.3	0	0	0	0
	20-60	10-20	7.4-8.4	10-15	0	0.0-2.0	0
562: Olex-----	0-10	10-20	6.6-7.3	0	0	0	0
	10-16	10-20	6.6-7.3	0	0	0	0
	16-25	10-20	7.4-8.4	0	0	0	0
	25-60	10-20	7.4-8.4	10-15	0	0.0-2.0	0
570: Bolicker-----	0-18	10-18	6.6-7.8	0	0	0	0
	18-25	8.0-15	7.4-7.8	0	0	0	0
	25-45	6.0-12	7.9-9.0	5-15	0	0.0-2.0	0-1
	45-60	6.0-12	7.9-9.0	5-15	0	0.0-2.0	0-1
571: Bolicker-----	0-18	10-18	6.6-7.8	0	0	0	0
	18-25	8.0-15	7.4-7.8	0	0	0	0
	25-45	6.0-12	7.9-9.0	5-15	0	0.0-2.0	0-1
	45-60	6.0-12	7.9-9.0	5-15	0	0.0-2.0	0-1
580: Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	7.4-8.4	0	0	0	0
	37-46	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	46-60	10-20	7.4-9.0	5-10	0	0.0-2.0	0
581: Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	7.4-8.4	0	0	0	0
	37-46	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	46-60	10-20	7.4-9.0	5-10	0	0.0-2.0	0
582: Benwy-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-10	10-20	6.6-7.8	0	0	0	0
	10-37	10-20	7.4-8.4	0	0	0	0
	37-46	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	46-60	10-20	7.4-9.0	5-10	0	0.0-2.0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
583: Benwy-----	0-11	10-20	6.6-7.8	0	0	0	0
	11-15	10-20	6.6-7.8	0	0	0	0
	15-28	10-20	7.4-8.4	5-10	0	0.0-2.0	0
	28-41	10-20	7.4-9.0	5-10	0	0.0-2.0	0
	41-45	---	---	---	---	---	---
584: Mikkalo-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-26	5.0-10	7.4-7.8	0	0	0	0
	26-38	5.0-10	7.4-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
585: Mikkalo-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-26	5.0-10	7.4-7.8	0	0	0	0
	26-38	5.0-10	7.4-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
Bakeoven-----	0-4	10-25	6.1-7.8	0	0	0	0
	4-10	10-30	6.6-7.8	0	0	0	0
	10-14	---	---	---	---	---	---
586: Mikkalo-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-26	5.0-10	7.4-7.8	0	0	0	0
	26-38	5.0-10	7.4-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
587: Mikkalo-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-26	5.0-10	7.4-7.8	0	0	0	0
	26-38	5.0-10	7.4-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
588: Mikkalo-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-26	5.0-10	7.4-7.8	0	0	0	0
	26-38	5.0-10	7.4-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
589: Mikkalo-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-26	5.0-10	7.4-7.8	0	0	0	0
	26-38	5.0-10	7.4-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
590: Mikkalo-----	0-8	5.0-10	6.6-7.8	0	0	0	0
	8-26	5.0-10	7.4-7.8	0	0	0	0
	26-38	5.0-10	7.4-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
591:							
Licksillet-----	0-8	5.0-15	7.4-7.8	0	0	0	0
	8-18	10-20	6.6-8.4	0-5	0	0.0-2.0	0
	18-22	---	---	---	---	---	---
Mikkalo-----	0-15	5.0-10	6.6-7.8	0	0	0	0
	15-26	5.0-10	7.4-7.8	0	0	0	0
	26-38	5.0-10	7.4-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
600:							
Meloza-----	0-3	10-20	7.4-7.8	0	0	0	0
	3-35	15-30	7.4-8.4	0	0	0	0
	35-60	15-30	7.9-8.4	1-20	0	0.0-4.0	0
670:							
Wato-----	0-19	10-15	6.6-7.8	0	0	0	0
	19-36	5.0-10	6.6-7.8	0	0	0	0
	36-49	5.0-10	6.6-7.8	0	0	0	0
	49-60	1.0-5.0	6.6-7.8	1-5	0	0.0-2.0	0
671:							
Wato-----	0-19	10-15	6.6-7.8	0	0	0	0
	19-36	5.0-10	6.6-7.8	0	0	0	0
	36-49	5.0-10	6.6-7.8	0	0	0	0
	49-60	1.0-5.0	6.6-7.8	1-5	0	0.0-2.0	0
672:							
Wato-----	0-19	10-15	6.6-7.8	0	0	0	0
	19-36	5.0-10	6.6-7.8	0	0	0	0
	36-49	5.0-10	6.6-7.8	0	0	0	0
	49-60	1.0-5.0	6.6-7.8	1-5	0	0.0-2.0	0
681:							
Nansene-----	0-18	10-20	6.1-7.8	0	0	0	0
	18-50	10-20	6.1-7.8	0	0	0	0
	50-60	5.0-15	6.6-8.4	1-5	0	0.0-2.0	0
682:							
Nansene-----	0-18	10-20	6.1-7.8	0	0	0	0
	18-50	10-20	6.1-7.8	0	0	0	0
	50-60	5.0-15	6.6-8.4	1-5	0	0.0-2.0	0
700:							
Urban land-----	---	---	---	---	---	---	---
711:							
Pits, quarry-----	0-60	---	---	---	---	---	---
721:							
Rock outcrop-----	0-60	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---
Haploxerolls-----	0-13	2.0-9.0	6.6-7.8	0-5	0	0.0-2.0	0
	13-60	1.0-5.0	6.6-7.8	0-10	0	0.0-2.0	0
724C:							
Haploxerolls-----	0-13	2.0-9.0	6.6-7.8	0-5	0	0	0-2
	13-60	1.0-5.0	6.6-7.8	0-10	0	0	0-2

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
724C: Rubble land-----	0-60	---	---	---	---	---	---
724D: Haploxerolls-----	0-13 13-60	2.0-9.0 1.0-5.0	6.6-7.8 6.6-7.8	0-5 0-10	0-2 0-2	0 0	0 0
Rubble land-----	0-60	---	---	---	---	---	---
725: Cauley-----	0-15 15-60	7.0-12 10-17	6.1-7.3 5.6-6.5	0 0	0 0	0 0	0 0
726: Cauley-----	0-15 15-60	7.0-12 10-17	6.1-7.3 5.6-6.5	0 0	0 0	0 0	0 0
727: Cauley-----	0-15 15-60	7.0-12 10-17	6.1-7.3 5.6-6.5	0 0	0 0	0 0	0 0
729: Cauley-----	0-15 15-60	7.0-12 10-17	6.1-7.3 5.6-6.5	0 0	0 0	0 0	0 0
730: Stacker-----	0-18 18-28 28-32	10-15 15-20 ---	6.1-7.3 6.1-7.3 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Horseflat-----	0-4 4-12 12-15 15-19	10-20 10-20 15-25 ---	6.6-7.8 6.6-7.8 6.6-7.8 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---
731: Stacker-----	0-18 18-28 28-32	10-15 15-20 ---	6.1-7.3 6.1-7.3 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Horseflat-----	0-4 4-12 12-15 15-19	10-20 10-20 15-25 ---	6.6-7.8 6.6-7.8 6.6-7.8 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---
732: Stacker-----	0-18 18-28 28-32	10-15 15-20 ---	6.1-7.3 6.1-7.3 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Horseflat-----	0-4 4-12 12-15 15-19	10-20 10-20 15-25 ---	6.6-7.8 6.6-7.8 6.6-7.8 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---	0 0 0 ---
737: Wind River-----	0-6 6-42 42-60	5.0-10 5.0-10 0.0-5.0	6.1-7.3 6.1-7.3 6.1-7.3	0 0 0	0 0 0	0 0 0	0 0 0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
742:							
Gwin-----	0-5	10-15	6.1-7.3	0	0	0	0
	5-11	15-30	6.1-7.3	0	0	0	0
	11-15	---	---	---	---	---	---
751:							
Lorena-----	0-9	10-20	5.6-6.5	0	0	0	0
	9-25	10-20	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
752:							
Lorena-----	0-9	10-20	5.6-6.5	0	0	0	0
	9-25	10-20	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
756:							
Walla Walla-----	0-10	10-15	6.6-7.8	0	0	0	0
	10-60	10-15	6.6-7.8	0	0	0	0
758:							
Walla Walla-----	0-10	10-15	6.6-7.8	0	0	0	0
	10-60	10-15	6.6-7.8	0	0	0	0
761:							
Balake-----	0-12	12-20	5.1-6.5	0	0	0	0
	12-60	18-24	5.6-6.5	0	0	0	0
762:							
Balake-----	0-12	12-20	5.1-6.5	0	0	0	0
	12-60	18-24	5.6-6.5	0	0	0	0
763:							
Balake-----	0-12	12-20	5.1-6.5	0	0	0	0
	12-60	18-24	5.6-6.5	0	0	0	0
764:							
Balake-----	0-12	12-20	5.1-6.5	0	0	0	0
	12-60	18-24	5.6-6.5	0	0	0	0
765:							
Balake-----	0-12	12-20	5.1-6.5	0	0	0	0
	12-60	18-24	5.6-6.5	0	0	0	0
766:							
Gunn-----	0-7	10-20	5.6-6.5	0	0	0	0
	7-15	10-20	5.6-6.5	0	0	0	0
	15-60	15-25	5.6-6.5	0	0	0	0
Galiente-----	0-11	10-20	5.6-7.3	0	0	0	0
	11-60	24-38	4.5-5.5	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
767:							
Gunn-----	0-7	10-20	5.6-6.5	0	0	0	0
	7-15	10-20	5.6-6.5	0	0	0	0
	15-60	15-25	5.6-6.5	0	0	0	0
Galiente-----	0-11	10-20	5.6-7.3	0	0	0	0
	11-60	24-38	4.5-5.5	0	0	0	0
768:							
Gunn-----	0-7	10-20	5.6-6.5	0	0	0	0
	7-15	10-20	5.6-6.5	0	0	0	0
	15-60	15-25	5.6-6.5	0	0	0	0
Galiente-----	0-11	10-20	5.6-7.3	0	0	0	0
	11-60	24-38	4.5-5.5	0	0	0	0
769:							
Aquic Haploxerolls---	0-8	10-20	5.6-6.5	0	0	0	0
	8-16	10-20	5.6-6.5	0	0	0	0
	16-42	10-20	5.6-6.5	0	0	0	0
	42-60	5.0-20	5.1-6.5	0	0	0	0
775:							
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-15	15-25	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
776:							
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-15	15-25	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
777:							
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-15	15-25	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
781:							
Gunn-----	0-7	10-20	5.6-6.5	0	0	0	0
	7-15	10-20	5.6-6.5	0	0	0	0
	15-60	15-25	5.6-6.5	0	0	0	0
782:							
Gunn-----	0-7	10-20	5.6-6.5	0	0	0	0
	7-15	10-20	5.6-6.5	0	0	0	0
	15-60	15-25	5.6-6.5	0	0	0	0
783:							
Gunn-----	0-7	10-20	5.6-6.5	0	0	0	0
	7-15	10-20	5.6-6.5	0	0	0	0
	15-60	15-25	5.6-6.5	0	0	0	0
790:							
Fisherhill-----	0-9	10-20	6.1-7.3	0	0	0	0
	9-60	18-25	6.1-7.3	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
791: Fisherhill-----	0-9	10-20	6.1-7.3	0	0	0	0
	9-60	18-25	6.1-7.3	0	0	0	0
792: Fisherhill-----	0-9	10-20	6.1-7.3	0	0	0	0
	9-60	18-25	6.1-7.3	0	0	0	0
793: Goldendale-----	0-14	8.0-16	5.6-6.5	0	0	0	0
	14-20	8.0-18	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
796: Lorena-----	0-9	10-20	5.6-6.5	0	0	0	0
	9-25	10-20	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
798: Dalig-----	0-5	12-22	6.1-6.5	0	0	0	0
	5-60	18-25	5.6-6.5	0	0	0	0
799: Dalig-----	0-5	12-22	6.1-6.5	0	0	0	0
	5-60	18-25	5.6-6.5	0	0	0	0
890: Stacker-----	0-18	10-15	6.1-7.3	0	0	0	0
	18-28	15-20	6.1-7.3	0	0	0	0
	28-32	---	---	---	---	---	---
891: Stacker-----	0-18	10-15	6.1-7.3	0	0	0	0
	18-28	15-20	6.1-7.3	0	0	0	0
	28-32	---	---	---	---	---	---
893: Fisherhill-----	0-9	10-20	6.1-7.3	0	0	0	0
	9-60	18-25	6.1-7.3	0	0	0	0
894: Fisherhill-----	0-9	10-20	6.1-7.3	0	0	0	0
	9-60	18-25	6.1-7.3	0	0	0	0
895: Fisherhill-----	0-9	10-20	6.1-7.3	0	0	0	0
	9-60	18-25	6.1-7.3	0	0	0	0
896: Stacker-----	0-18	10-15	6.1-7.3	0	0	0	0
	18-28	15-20	6.1-7.3	0	0	0	0
	28-32	---	---	---	---	---	---
897: Stacker-----	0-18	10-15	6.1-7.3	0	0	0	0
	18-28	15-20	6.1-7.3	0	0	0	0
	28-32	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
898:							
Stacker-----	0-18	10-15	6.1-7.3	0	0	0	0
	18-28	15-20	6.1-7.3	0	0	0	0
	28-32	---	---	---	---	---	---
899:							
Stacker-----	0-18	10-15	6.1-7.3	0	0	0	0
	18-28	15-20	6.1-7.3	0	0	0	0
	28-32	---	---	---	---	---	---
930A:							
Rockly-----	0-6	15-25	6.1-7.3	0	0	0	0
	6-9	15-20	6.1-7.3	0	0	0	0
	9-13	---	---	---	---	---	---
Lorena-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-23	10-20	6.1-7.3	0	0	0	0
	23-35	10-20	6.1-7.3	0	0	0	0
	35-39	---	---	---	---	---	---
930B:							
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
Lorena-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-23	10-20	6.1-7.3	0	0	0	0
	23-35	10-20	6.1-7.3	0	0	0	0
	35-39	---	---	---	---	---	---
950:							
Lorena-----	0-9	10-20	5.6-6.5	0	0	0	0
	9-25	10-20	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
951:							
Lorena-----	0-9	10-20	5.6-6.5	0	0	0	0
	9-25	10-20	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
952:							
Lorena-----	0-9	10-20	5.6-6.5	0	0	0	0
	9-25	10-20	6.1-7.3	0	0	0	0
	25-29	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
969:							
Goldendale-----	0-10	8.0-16	5.6-6.5	0	0	0	0
	10-15	8.0-18	6.1-7.3	0	0	0	0
	15-45	15-25	6.1-7.3	0	0	0	0
	45-49	---	---	---	---	---	---
969A:							
Goldendale-----	0-10	8.0-16	5.6-6.5	0	0	0	0
	10-15	8.0-18	6.1-7.3	0	0	0	0
	15-45	15-25	6.1-7.3	0	0	0	0
	45-49	---	---	---	---	---	---
969B:							
Goldendale-----	0-10	8.0-16	5.6-6.5	0	0	0	0
	10-15	8.0-18	6.1-7.3	0	0	0	0
	15-45	15-25	6.1-7.3	0	0	0	0
	45-49	---	---	---	---	---	---
969C:							
Goldendale-----	0-10	8.0-16	5.6-6.5	0	0	0	0
	10-15	8.0-18	6.1-7.3	0	0	0	0
	15-45	15-25	6.1-7.3	0	0	0	0
	45-49	---	---	---	---	---	---
970:							
Oreoke-----	0-5	10-15	5.6-6.5	0	0	0	0
	5-15	10-15	5.6-6.5	0	0	0	0
	15-22	10-18	5.6-6.5	0	0	0	0
	22-60	15-25	5.6-7.3	0	0	0	0
Tronsen-----	0-8	10-20	6.6-7.3	0	0	0	0
	8-14	25-35	6.6-7.3	0	0	0	0
	14-60	25-35	6.6-7.8	0	0	0	0
971:							
Oreoke-----	0-5	10-15	5.6-6.5	0	0	0	0
	5-15	10-15	5.6-6.5	0	0	0	0
	15-22	10-18	5.6-6.5	0	0	0	0
	22-60	15-25	5.6-7.3	0	0	0	0
Tronsen-----	0-8	10-20	6.6-7.3	0	0	0	0
	8-14	25-35	6.6-7.3	0	0	0	0
	14-60	25-35	6.6-7.8	0	0	0	0
987:							
Asotin-----	0-10	8.0-15	6.6-7.8	0	0	0	0
	10-32	8.0-15	7.4-8.4	0	0	0	0
	32-38	7.0-13	7.9-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
988:							
Asotin-----	0-10	8.0-15	6.6-7.8	0	0	0	0
	10-32	8.0-15	7.4-8.4	0	0	0	0
	32-38	7.0-13	7.9-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	In	meq/100 g	pH	Pct	Pct	mmhos/cm	
989:							
Asotin-----	0-10	8.0-15	6.6-7.8	0	0	0	0
	10-32	8.0-15	7.4-8.4	0	0	0	0
	32-38	7.0-13	7.9-9.0	5-15	0	0.0-2.0	0
	38-42	---	---	---	---	---	---
990:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
Lorena-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-23	10-20	6.1-7.3	0	0	0	0
	23-35	10-20	6.1-7.3	0	0	0	0
	35-39	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
991:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
Lorena-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-23	10-20	6.1-7.3	0	0	0	0
	23-35	10-20	6.1-7.3	0	0	0	0
	35-39	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
993A:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
993B:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
993C:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
993D:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
994:							
Lorena-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-23	10-20	6.1-7.3	0	0	0	0
	23-35	10-20	6.1-7.3	0	0	0	0
	35-39	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
994A:							
Lorena-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-23	10-20	6.1-7.3	0	0	0	0
	23-35	10-20	6.1-7.3	0	0	0	0
	35-39	---	---	---	---	---	---
994B:							
Lorena-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-23	10-20	6.1-7.3	0	0	0	0
	23-35	10-20	6.1-7.3	0	0	0	0
	35-39	---	---	---	---	---	---
994C:							
Lorena-----	0-12	10-20	5.6-6.5	0	0	0	0
	12-23	10-20	6.1-7.3	0	0	0	0
	23-35	10-20	6.1-7.3	0	0	0	0
	35-39	---	---	---	---	---	---
995:							
Hyprairie-----	0-7	12-22	5.6-6.5	0	0	0	0
	7-25	10-18	5.6-6.5	0	0	0	0
	25-48	14-24	6.1-7.3	0	0	0	0
	48-60	14-25	6.1-7.3	0	0	0	0
996:							
Hyprairie-----	0-7	12-22	5.6-6.5	0	0	0	0
	7-25	10-18	5.6-6.5	0	0	0	0
	25-48	14-24	6.1-7.3	0	0	0	0
	48-60	14-25	6.1-7.3	0	0	0	0
1000:							
Tekison-----	0-11	10-20	5.6-7.3	0	0	0	0
	11-20	20-30	5.6-6.5	0	0	0	0
	20-45	20-30	5.6-6.5	0	0	0	0
	45-60	20-25	5.6-6.5	0	0	0	0
1010:							
Colockum-----	0-20	10-20	6.6-7.8	0	0	0	0
	20-34	10-20	6.6-7.8	0	0	0	0
	34-46	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	46-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
1011:							
Colockum-----	0-20	10-20	6.6-7.8	0	0	0	0
	20-34	10-20	6.6-7.8	0	0	0	0
	34-46	10-20	7.4-8.4	1-5	0	0.0-2.0	0
	46-60	10-20	7.4-8.4	15-35	0	0.0-2.0	0
Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
1012:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
1012:							
Tekison-----	0-8	10-20	5.6-7.3	0	0	0	0
	8-18	20-30	5.6-6.5	0	0	0	0
	18-44	20-30	5.6-6.5	0	0	0	0
	44-60	20-25	5.6-6.5	0	0	0	0
1013:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
Tekison-----	0-8	10-20	5.6-7.3	0	0	0	0
	8-18	20-30	5.6-6.5	0	0	0	0
	18-44	20-30	5.6-6.5	0	0	0	0
	44-60	20-25	5.6-6.5	0	0	0	0
1014:							
Tekison-----	0-8	10-20	5.6-7.3	0	0	0	0
	8-18	20-30	5.6-6.5	0	0	0	0
	18-44	20-30	5.6-6.5	0	0	0	0
	44-60	20-25	5.6-6.5	0	0	0	0
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
1015:							
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
Tekison-----	0-8	10-20	5.6-7.3	0	0	0	0
	8-18	20-30	5.6-6.5	0	0	0	0
	18-44	20-30	5.6-6.5	0	0	0	0
	44-60	20-25	5.6-6.5	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
1016:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---
1017:							
Tronsen-----	0-8	10-20	6.6-7.3	0	0	0	0
	8-14	25-35	6.6-7.3	0	0	0	0
	14-60	25-35	6.6-7.8	0	0	0	0
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-15	15-25	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
1018:							
Tronsen-----	0-8	10-20	6.6-7.3	0	0	0	0
	8-14	25-35	6.6-7.3	0	0	0	0
	14-60	25-35	6.6-7.8	0	0	0	0
Goodnoe-----	0-6	5.0-15	6.1-7.8	0	0	0	0
	6-12	5.0-15	7.4-8.4	0-2	0	0.0-2.0	0
	12-22	8.0-20	7.4-8.4	0-2	0	0.0-2.0	0
	22-29	8.0-15	7.9-8.4	0-2	0	0.0-2.0	0
	29-33	---	---	---	---	---	---
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-15	15-25	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
1030:							
Stacker-----	0-16	10-15	6.1-7.3	0	0	0	0
	16-36	15-20	6.1-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
Swalecreek-----	0-9	15-20	5.6-7.3	0	0	0	0
	9-26	20-25	5.6-7.3	0	0	0	0
	26-60	20-25	6.1-7.3	0	0	0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-15	15-25	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
1031:							
Stacker-----	0-16	10-15	6.1-7.3	0	0	0	0
	16-36	15-20	6.1-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
Swalecreek-----	0-9	15-20	5.6-7.3	0	0	0	0
	9-26	20-25	5.6-7.3	0	0	0	0
	26-60	20-25	6.1-7.3	0	0	0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-15	15-25	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---
1032:							
Goodnoe-----	0-6	5.0-15	6.1-7.8	0	0	0	0
	6-12	5.0-15	7.4-8.4	0-2	0	0.0-2.0	0
	12-22	8.0-20	7.4-8.4	0-2	0	0.0-2.0	0
	22-29	8.0-15	7.4-8.4	0-2	0	0.0-2.0	0
	29-33	---	---	---	---	---	---
Swalecreek-----	0-9	15-20	5.6-7.3	0	0	0	0
	9-26	20-25	5.6-7.3	0	0	0	0
	26-60	20-25	6.1-7.3	0	0	0	0
Horseflat-----	0-4	10-20	6.6-7.8	0	0	0	0
	4-12	10-20	6.6-7.8	0	0	0	0
	12-15	15-25	6.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
1042:							
Cheviot-----	0-7	10-20	6.6-7.8	0	0	0	0
	7-40	5.0-10	6.6-7.8	0	0	0	0
	40-60	5.0-10	6.6-7.8	0-3	0	0.0-2.0	0
Tronsen-----	0-8	10-20	6.6-7.3	0	0	0	0
	8-14	25-35	6.6-7.3	0	0	0	0
	14-60	25-35	6.6-7.8	0	0	0	0
1075:							
Walla Walla-----	0-11	10-15	6.6-7.8	0	0	0	0
	11-50	10-15	6.6-7.8	0	0	0	0
	50-60	10-15	7.4-9.0	5-10	0	0.0-2.0	0
Goodnoe-----	0-6	5.0-15	6.1-7.8	0	0	0	0
	6-12	5.0-15	7.4-8.4	0-2	0	0.0-2.0	0
	12-22	8.0-20	7.4-8.4	0-2	0	0.0-2.0	0
	22-29	8.0-15	7.9-8.4	0-2	0	0.0-2.0	0
	29-33	---	---	---	---	---	---
1093:							
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
Lorena-----	0-16	10-20	5.6-6.5	0	0	0	0
	16-31	10-20	6.1-7.3	0	0	0	0
	31-36	10-20	6.1-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
1096:							
Oreoke-----	0-5	10-15	5.6-6.5	0	0	0	0
	5-15	10-15	5.6-6.5	0	0	0	0
	15-22	10-18	5.6-6.5	0	0	0	0
	22-60	15-25	5.6-7.3	0	0	0	0
Goldendale-----	0-14	6.0-14	5.6-6.5	0	0	0	0
	14-20	9.0-13	6.1-7.3	0	0	0	0
	20-60	15-25	6.1-7.3	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---
1097:							
Tekison-----	0-8	10-20	5.6-7.3	0	0	0	0
	8-18	20-30	5.6-6.5	0	0	0	0
	18-44	20-30	5.6-6.5	0	0	0	0
	44-60	20-25	5.6-6.5	0	0	0	0
Lorena-----	0-16	10-20	5.6-6.5	0	0	0	0
	16-31	10-20	6.1-7.3	0	0	0	0
	31-36	10-20	6.1-7.3	0	0	0	0
	36-40	---	---	---	---	---	---
Rockly-----	0-4	15-25	6.1-7.3	0	0	0	0
	4-10	15-20	6.1-7.3	0	0	0	0
	10-14	---	---	---	---	---	---

Table 7.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>	
2961:							
Renslow-----	0-13	10-20	6.6-7.8	0	0	0	0
	13-20	10-20	7.4-8.4	0	0	0	0
	20-45	10-20	7.9-9.0	5-15	0	0.0-4.0	0-1
	45-49	---	---	---	---	---	---
2971:							
Renslow-----	0-13	10-20	6.6-7.8	0	0	0	0
	13-20	10-20	7.4-8.4	0	0	0	0
	20-45	10-20	7.9-9.0	5-15	0	0.0-4.0	0-1
	45-49	---	---	---	---	---	---
3061:							
Ritzville-----	0-13	5.0-10	6.6-7.8	0	0	0	0
	13-40	5.0-10	6.6-7.8	0	0	0	0
	40-53	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
	53-57	---	---	---	---	---	---
3071:							
Ritzville-----	0-13	5.0-10	6.6-7.8	0	0	0	0
	13-40	5.0-10	6.6-7.8	0	0	0	0
	40-53	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
	53-57	---	---	---	---	---	---
3081:							
Ritzville-----	0-13	5.0-10	6.6-7.8	0	0	0	0
	13-40	5.0-10	6.6-7.8	0	0	0	0
	40-53	5.0-10	7.9-9.0	5-15	0	0.0-2.0	0
	53-57	---	---	---	---	---	---
D:							
Dam-----	---	---	---	---	---	---	---
W:							
Water-----	---	---	---	---	---	---	---

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency
9B: Pird-----	B	Jan-Dec	<i>Ft</i>	<i>Ft</i>	<i>Ft</i>		
			---	---	---	---	None
9C: Quincy-----	A	Jan-Dec	---	---	---	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None
10: Pits, gravel-----	A	Jan-Dec	---	---	---	---	None
10B: Andic Haplocryalfs-----	D	Jan-Dec	---	---	---	---	None
11: Xerands-----	B	Jan-Dec	---	---	---	---	None
11A: Xerands-----	B	Jan-Dec	---	---	---	---	None
11B: Xerands-----	B	Jan-Dec	---	---	---	---	None
11C: Xerands-----	B	Jan-Dec	---	---	---	---	None
12: Legall-----	B	Jan-Dec	---	---	---	---	None
12A: Tekison-----	C	Jan-Dec	---	---	---	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
12B: Maydol-----	B	Jan-Dec	Ft	Ft	Ft			
			---	---	---	---	None	
12C: Legall-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Rubble land-----	A	Jan-Dec	---	---	---	---	None	
12D: Lyville-----	B	Jan-Dec	---	---	---	---	None	
12E: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Rubble land-----	A	Jan-Dec	---	---	---	---	None	
Legall-----	B	Jan-Dec	---	---	---	---	None	
12F: Lyville-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
13B: Itat-----	B	Jan-Dec	---	---	---	---	None	
13C: Itat-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
14A: Rockly-----	D	Jan-Dec	---	---	---	---	None	
14B: Rockly-----	D	Jan-Dec	---	---	---	---	None	
15: Rockly-----	D	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
16: Sauter-----	B	Jan-Dec	---	---	---	---	None	
16B: Suta-----	B	Jan-Dec	---	---	---	---	None	
16C: Sauter-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Rubble land-----	A	Jan-Dec	---	---	---	---	None	
16E: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Rubble land-----	A	Jan-Dec	---	---	---	---	None	
Sauter-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
17A: Presher-----	B	Jan-Dec	<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
			---	---	---	---	None	
17B: Presher-----	B	Jan-Dec	---	---	---	---	None	
			---	---	---	---	None	
17D: Quiden-----	B	Jan-Dec	---	---	---	---	None	
			---	---	---	---	None	
18A: Kaiders-----	B	Jan-Dec	---	---	---	---	None	
			---	---	---	---	None	
18B: Kaiders-----	B	Jan-Dec	---	---	---	---	None	
			---	---	---	---	None	
18C: Kaiders-----	B	Jan-Dec	---	---	---	---	None	
			---	---	---	---	None	
19: Kiakus-----	C	Jan-Dec	---	---	---	---	None	
			---	---	---	---	None	
Munset-----	D	January February March April May June July August November December	0.8-1.3 0.2-0.8 0.0-0.2 0.0-0.2 0.2-0.8 0.8-1.3 1.3-1.8 1.8-2.1 1.8-2.1 1.3-1.8	1.7-3.3 1.7-3.3 1.7-3.3 1.7-3.3 1.7-3.3 1.7-3.3 1.7-3.3 1.7-3.3 1.7-3.3 1.7-3.3	--- --- 0.0-1.0 0.0-1.0 --- --- --- --- --- ---	--- --- Very long Very long --- --- --- --- --- ---	None None Frequent Frequent None None None None None None	
			---	---	---	---	None	
Wahoo-----	D	Jan-Dec	---	---	---	---	None	
			---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency
20: Nook-----	C		<i>Ft</i>	<i>Ft</i>	<i>Ft</i>		
		February	2.9-6.0	>6.0	---	---	None
		March	2.1-2.9	>6.0	---	---	None
		April	2.9-6.0	>6.0	---	---	None
20A: Threecreeks-----	C						
		January	3.4-4.0	>6.0	---	---	None
		February	2.0-3.4	>6.0	---	---	None
		March	2.0-3.4	>6.0	---	---	None
		April	3.4-4.0	>6.0	---	---	None
		May	4.0-6.0	>6.0	---	---	None
		December	4.0-6.0	>6.0	---	---	None
21: Rock outcrop-----	D						
		Jan-Dec	---	---	---	---	None
Rubble land-----	A						
		Jan-Dec	---	---	---	---	None
22: Fluventic Haploxerolls-----	A						
		January	3.3-6.0	>6.0	---	---	None
		February	3.3-6.0	>6.0	---	---	None
		March	3.3-6.0	>6.0	---	---	None
		April	3.3-6.0	>6.0	---	---	None
		May	3.3-6.0	>6.0	---	---	None
		June	---	---	---	---	None
		November	---	---	---	---	None
		December	3.3-6.0	>6.0	---	---	None

Table 8.--Water Features--Continued

Map symbol and soil name		Hydro- logic group	Month	Water table		Ponding			
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Dur
22: Riverwash-----	D			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
			January	0.0-2.0	>6.0	---	---	None	Very
			February	0.0-2.0	>6.0	---	---	None	Very
			March	0.0-2.0	>6.0	---	---	None	Very
			April	0.0-2.0	>6.0	---	---	None	Very
			May	0.0-2.0	>6.0	---	---	None	Very
			June	0.0-2.0	>6.0	---	---	None	Very
			July	0.0-2.0	>6.0	---	---	None	Very
			August	0.0-2.0	>6.0	---	---	None	Very
			September	0.0-2.0	>6.0	---	---	None	Very
			October	0.0-2.0	>6.0	---	---	None	Very
			November	0.0-2.0	>6.0	---	---	None	Very
			December	0.0-2.0	>6.0	---	---	None	Very
23: Gunn-----	B		Jan-Dec	---	---	---	---	None	
23A: Gunn-----	B		Jan-Dec	---	---	---	---	None	
23B: Gunn-----	B		Jan-Dec	---	---	---	---	None	
23C: Gunn-----	B		Jan-Dec	---	---	---	---	None	
24: Rockly-----	D		Jan-Dec	---	---	---	---	None	
Itat-----	B		Jan-Dec	---	---	---	---	None	
25: Leidl-----	C		Jan-Dec	---	---	---	---	None	
Dillcourt-----	B		Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Dur
25: Rock outcrop-----	D	Jan-Dec	<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
			---	---	---	---	None	
25A: Leidl-----	C	Jan-Dec	---	---	---	---	None	
25B: Leidl-----	C	Jan-Dec	---	---	---	---	None	
Oroke-----	B	Jan-Dec	---	---	---	---	None	
25C: Leidl-----	C	Jan-Dec	---	---	---	---	None	
Dillcourt-----	B	Jan-Dec	---	---	---	---	None	
26: Mazdale-----	B	Jan-Dec	---	---	---	---	None	
26C: Mazdale-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Rubble land-----	A	Jan-Dec	---	---	---	---	None	
26E: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Rubble land-----	A	Jan-Dec	---	---	---	---	None	
Mazdale-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Dur
27B: Yedlick-----	B	Jan-Dec	---	---	---	---	None	
28: Trelk-----	B	Jan-Dec	---	---	---	---	None	
30: Rockly-----	D	Jan-Dec	---	---	---	---	None	
Kiakus-----	C	Jan-Dec	---	---	---	---	None	
30A: Rockly-----	D	Jan-Dec	---	---	---	---	None	
Lorena-----	C	Jan-Dec	---	---	---	---	None	
30B: Rockly-----	D	Jan-Dec	---	---	---	---	None	
Lorena-----	C	Jan-Dec	---	---	---	---	None	
32A: Beezee-----	B	Jan-Dec	---	---	---	---	None	
32B: Beezee-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
36C: Rubble land-----	A	Jan-Dec	---	---	---	---	None	
39A: Hyprairie-----	B	Jan-Dec	---	---	---	---	None	
39B: Hyprairie-----	B	Jan-Dec	---	---	---	---	None	
39C: Hyprairie-----	B	Jan-Dec	---	---	---	---	None	
39D: Hyprairie-----	B	Jan-Dec	---	---	---	---	None	
41: Oreoke-----	B	Jan-Dec	---	---	---	---	None	
Legall-----	B	Jan-Dec	---	---	---	---	None	
42: Oreoke-----	B	Jan-Dec	---	---	---	---	None	
Beezee-----	B	Jan-Dec	---	---	---	---	None	
43: Oreoke-----	B	Jan-Dec	---	---	---	---	None	
Colockum-----	B	Jan-Dec	---	---	---	---	None	
49A: Kiakus-----	C	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
49B: Kiakus-----	C	Jan-Dec	---	---	---	---	None	
49C: Kiakus-----	C	Jan-Dec	---	---	---	---	None	
49D: Kiakus-----	C	Jan-Dec	---	---	---	---	None	
49E: Kiakus-----	C	Jan-Dec	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	None	
55: Firoke-----	B	Jan-Dec	---	---	---	---	None	
55A: Kingtain-----	B	Jan-Dec	---	---	---	---	None	
57: Firoke-----	B	Jan-Dec	---	---	---	---	None	
59B: Bercumb-----	B	Jan-Dec	---	---	---	---	None	
59C: Bercumb-----	B	Jan-Dec	---	---	---	---	None	
59D: Bercumb-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name		Hydro- logic group	Month	Water table		Ponding			Dur
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	
61: Grayland-----	D			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
			January	0.7-1.2	>6.0	---	---	None	
			February	0.3-0.7	>6.0	---	---	None	
			March	0.0-0.3	>6.0	0.0-1.0	Very long	Frequent	
			April	0.7-1.2	>6.0	---	---	None	
			May	1.2-2.0	>6.0	---	---	None	
			June	2.0-2.8	>6.0	---	---	None	
			July	2.8-3.7	>6.0	---	---	None	
			August	3.7-6.0	>6.0	---	---	None	
			September	3.7-6.0	>6.0	---	---	None	
			October	2.8-3.7	>6.0	---	---	None	
			November	2.0-2.8	>6.0	---	---	None	
			December	1.2-2.0	>6.0	---	---	None	
63: Fanal-----	C		January	3.7-6.0	>6.0	---	---	None	
			February	2.6-3.7	>6.0	---	---	None	
			March	2.6-3.7	>6.0	---	---	None	
			April	3.7-6.0	>6.0	---	---	None	
65: Leidl-----	C		Jan-Dec	---	---	---	---	None	
65B: Dystroxerepts-----	D		Jan-Dec	---	---	---	---	None	
66: Flotag-----	B		April	4.7-6.0	>6.0	---	---	None	
			May	4.7-6.0	>6.0	---	---	None	
			June	4.7-6.0	>6.0	---	---	None	
			July	4.7-6.0	>6.0	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name		Hydro- logic group	Month	Water table		Ponding				Dur
				Upper limit	Lower limit	Surface water depth	Duration	Frequency		
68: Fluvaquentic Endoaquolls	D			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			January	0.5-1.1	>6.0	---	---	None	Lc	
			February	0.5-1.1	>6.0	---	---	None	Lc	
			March	0.0-0.5	>6.0	---	---	None	Lc	
			April	0.0-0.5	>6.0	---	---	None	Lc	
			May	0.0-0.5	>6.0	---	---	None	Lc	
			June	0.0-0.5	>6.0	---	---	None	Lc	
			July	0.5-1.1	>6.0	---	---	None	Lc	
			August	1.1-1.7	>6.0	---	---	None	Lc	
			September	1.7-2.1	>6.0	---	---	None	Lc	
			October	1.7-2.1	>6.0	---	---	None	Lc	
			November	1.1-1.7	>6.0	---	---	None	Lc	
			December	0.5-1.1	>6.0	---	---	None	Lc	
69: Goldendale	B			---	---	---	---	None		
			Jan-Dec							
69A: Goldendale	B			---	---	---	---	None		
			Jan-Dec							
69B: Goldendale	B			---	---	---	---	None		
			Jan-Dec							
69C: Goldendale	B			---	---	---	---	None		
			Jan-Dec							

Table 8.--Water Features--Continued

Map symbol and soil name		Hydro- logic group	Month	Water table		Ponding			Dur
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	
72: Aqualfs-----	D			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
			January	0.5-1.1	>6.0	---	---	None	
			February	0.0-0.5	>6.0	---	---	None	
			March	0.0-0.5	>6.0	0.0-1.0	Long	Frequent	
			April	0.0-0.5	>6.0	0.0-1.0	Long	Frequent	
			May	0.0-0.5	>6.0	0.0-1.0	Long	Frequent	
			June	0.5-1.1	>6.0	---	---	None	
			July	1.1-1.4	>6.0	---	---	None	
			August	1.4-2.3	>6.0	---	---	None	
			September	1.4-2.3	>6.0	---	---	None	
			October	1.1-1.4	>6.0	---	---	None	
			November	0.5-1.1	>6.0	---	---	None	
			December	0.5-1.1	>6.0	---	---	None	
73A: Dalig-----	B		Jan-Dec	---	---	---	---	None	
73B: Dalig-----	B		Jan-Dec	---	---	---	---	None	
73C: Dalig-----	B		Jan-Dec	---	---	---	---	None	
74A: Tigit-----	C		Jan-Dec	---	---	---	---	None	
74B: Tigit-----	C		Jan-Dec	---	---	---	---	None	
74C: Tigit-----	C		Jan-Dec	---	---	---	---	None	
76: Underwood-----	B		Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
76A: Underwood-----	B	Jan-Dec	---	---	---	---	None	
76B: Underwood-----	B	Jan-Dec	---	---	---	---	None	
76C: Underwood-----	B	Jan-Dec	---	---	---	---	None	
77: McGowan-----	B	Jan-Dec	---	---	---	---	None	
77A: McGowan-----	B	Jan-Dec	---	---	---	---	None	
80: Troutlake-----	B	Jan-Dec	---	---	---	---	None	
81: Sugarbowl-----	B	Jan-Dec	---	---	---	---	None	
82B: Kingtain-----	B	Jan-Dec	---	---	---	---	None	
82D: Kingtain-----	B	Jan-Dec	---	---	---	---	None	
82E: Kingtain-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Dur
83: Volash-----	B	Jan-Dec	---	---	---	---	None	
84: Trouter-----	C	Jan-Dec	---	---	---	---	None	
84A: Trouter-----	C	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
86A: Chemawa-----	B	Jan-Dec	---	---	---	---	None	
86B: Chemawa-----	B	Jan-Dec	---	---	---	---	None	
86C: Chemawa-----	B	Jan-Dec	---	---	---	---	None	
86D: Chemawa-----	B	Jan-Dec	---	---	---	---	None	
87A: Eagreek-----	B	Jan-Dec	---	---	---	---	None	
88A: Timberhead-----	B	Jan-Dec	---	---	---	---	None	
88B: Timberhead-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
89: McElroy-----	B	Jan-Dec	---	---	---	---	None	
89B: McElroy-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
90: Hood-----	B	Jan-Dec	---	---	---	---	None	
90A: Hood-----	B	Jan-Dec	---	---	---	---	None	
90B: Hood-----	B	Jan-Dec	---	---	---	---	None	
90C: Hood-----	B	January February March April	---	---	---	---	None	
92: Husum-----	B	Jan-Dec	---	---	---	---	None	
92A: Husum-----	B	Jan-Dec	---	---	---	---	None	
92B: Husum-----	B	Jan-Dec	---	---	---	---	None	
93: Goldendale-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
93A: Goldendale-----	B	Jan-Dec	---	---	Ft	---	None	
93B: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
93C: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
93D: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
94: Lorena-----	C	Jan-Dec	---	---	---	---	None	
94A: Lorena-----	C	Jan-Dec	---	---	---	---	None	
94B: Lorena-----	C	Jan-Dec	---	---	---	---	None	
94C: Lorena-----	C	Jan-Dec	---	---	---	---	None	
94E: Lorena-----	C	Jan-Dec	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
97A: Setnum-----	C		<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
		January	1.4-2.1	1.7-3.3	---	---	None	
		February	0.8-1.4	1.7-3.3	---	---	None	
		March	1.4-2.1	1.7-3.3	---	---	None	
		April	2.1-2.6	1.7-3.3	---	---	None	
		May	2.6-3.2	1.7-3.3	---	---	None	
		November	2.6-3.2	1.7-3.3	---	---	None	
		December	2.1-2.6	1.7-3.3	---	---	None	
97B: Blockhouse-----	D	January	3.7-6.0	>6.0	---	---	None	
		February	2.4-3.7	>6.0	---	---	None	
		March	2.4-3.7	>6.0	---	---	None	
		April	2.4-3.7	>6.0	---	---	None	
		May	3.7-6.0	>6.0	---	---	None	
		December	3.7-6.0	>6.0	---	---	None	
		January	0.8-1.3	1.7-3.3	---	---	None	
		February	0.2-0.8	1.7-3.3	---	---	None	
Munset-----	D	March	0.0-0.2	1.7-3.3	0.0-1.0	Very long	Frequent	
		April	0.0-0.2	1.7-3.3	0.0-1.0	Very long	Frequent	
		May	0.2-0.8	1.7-3.3	---	---	None	
		June	0.8-1.3	1.7-3.3	---	---	None	
		July	1.3-1.8	1.7-3.3	---	---	None	
		August	1.8-2.1	1.7-3.3	---	---	None	
		November	1.8-2.1	1.7-3.3	---	---	None	
		December	1.3-1.8	1.7-3.3	---	---	None	
99: Dallesport-----	B	Jan-Dec	---	---	---	---	None	
100: Dallesport-----	B	Jan-Dec	---	---	---	---	None	
101: Dallesport-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
102: Dallesport-----	B	Jan-Dec	---	---	---	---	None	Dur
103: Dallesport-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
104: Dallesport-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
105: Ewall-----	A	Jan-Dec	---	---	---	---	None	
106: Ewall-----	A	Jan-Dec	---	---	---	---	None	
107: Ewall-----	A	Jan-Dec	---	---	---	---	None	
108: Ewall-----	A	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
109: Ewall-----	A	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
113B: Tekison-----	C	Jan-Dec	---	---	---	---	None	
113C: Tekison-----	C	Jan-Dec	---	---	---	---	None	
115: Aguolls-----	A	January February March April May June October November December	0.0-0.8 0.0-0.8 0.0-0.8 0.8-2.2 2.2-2.7 2.7-3.7 2.7-3.7 2.2-2.7 0.8-2.2	3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0	---	---	None None None None None None None None None	
116: Aguolls-----	A	January February March April May June October November December	0.0-0.8 0.0-0.8 0.0-0.8 0.8-2.2 2.2-2.7 2.7-3.7 2.7-3.7 2.2-2.7 0.8-2.2	3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0 3.3-5.0	---	---	None None None None None None None None None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
120: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Haploxerolls-----	A	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
121: Rock outcrop-----	D	Jan-Dec	Ft	Ft	Ft			
			---	---	---	---	None	
Haploxerolls-----	B	Jan-Dec	---	---	---	---	None	
122: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Haploxerolls-----	B	Jan-Dec	---	---	---	---	None	
123A: Galiente-----	C	Jan-Dec	---	---	---	---	None	
125: Scooteney-----	B	Jan-Dec	---	---	---	---	None	
127: Scooteney-----	B	Jan-Dec	---	---	---	---	None	
130: Oxy-----	C	January February March April	---	---	---	---	None	Br-
			---	---	---	---	None	Br-
			---	---	---	---	None	Br-
131: Onyx-----	B	January February March April	---	---	---	---	None	Br-
			---	---	---	---	None	Br-
			---	---	---	---	None	Br-
			---	---	---	---	None	Br-

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
132: Esquatzel-----	B		<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
		January	---	---	---	---	None	
		February	---	---	---	---	None	
		March	---	---	---	---	None	
		April	---	---	---	---	None	
136: Bickleton-----	B							
		Jan-Dec	---	---	---	---	None	
137: Bickleton-----	B	Jan-Dec	---	---	---	---	None	
140: Broadax-----	B	Jan-Dec	---	---	---	---	None	
141: Broadax-----	B	Jan-Dec	---	---	---	---	None	
150: Morrow-----	C		---	---	---	---	None	
		Jan-Dec	---	---	---	---	None	
151: Morrow-----	C	Jan-Dec	---	---	---	---	None	
155: Morrow-----	C	Jan-Dec	---	---	---	---	None	
Bakeoven-----	D	Jan-Dec	---	---	---	---	None	
159B: Panak-----	B		---	---	---	---	None	
		Jan-Dec	---	---	---	---	None	
159C: Panak-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency
159D: Panak-----	B	Jan-Dec	---	---	---	---	None
161: Van Nostern-----	C	Jan-Dec	---	---	---	---	None
181: Unapine-----	D	January February March April May June July November December	1.7-2.9 1.7-2.9 0.5-1.7 1.7-2.9 1.7-2.9 2.9-3.9 3.9-6.0 3.5-5.0 2.9-3.9	>6.0 >6.0 >6.0 >6.0 >6.0 >6.0 >6.0 >6.0 >6.0	---	---	None None None None None None None None None
187: Cleman-----	B	Jan-Dec	---	---	---	---	None
190: Weirman-----	C	January February March April May November December	3.3-6.0 3.3-6.0 3.3-6.0 3.3-6.0 3.3-6.0 3.3-6.0 3.3-6.0	>6.0 >6.0 >6.0 >6.0 --- >6.0 >6.0	---	---	None None None None None None None
193: Swalecreek-----	B	Jan-Dec	---	---	---	---	None
194: Swalecreek-----	B	Jan-Dec	---	---	---	---	None
195: Swalecreek-----	B	Jan-Dec	---	---	---	---	None

Table 8.--Water Features--Continued

Map symbol and soil name		Hydro- logic group	Month	Water table		Ponding			Dur
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	
195:				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
Niva-----		D	Jan-Dec	---	---	---	---	None	
196:									
Mondovi-----		B	January	---	---	---	---	None	Br--
			February	---	---	---	---	None	Br--
			March	---	---	---	---	None	Br--
			December	---	---	---	---	None	Br--
200:									
Malaga-----		B	Jan-Dec	---	---	---	---	None	
211:									
Hezel-----		B	Jan-Dec	---	---	---	---	None	
212:									
Hezel-----		B	Jan-Dec	---	---	---	---	None	
213:									
Hezel-----		B	Jan-Dec	---	---	---	---	None	
225:									
Kiona-----		B	Jan-Dec	---	---	---	---	None	
226:									
Kiona-----		B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----		D	Jan-Dec	---	---	---	---	None	
227:									
Cheviot-----		B	Jan-Dec	---	---	---	---	None	
228:									
Borfin-----		C	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
229: Cheviot-----	B	Jan-Dec	---	---	---	---	None	
Wipple-----	C	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
230: Cheviot-----	B	Jan-Dec	---	---	---	---	None	
Ralls-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
240: Niva-----	D	Jan-Dec	---	---	---	---	None	
241: Niva-----	D	Jan-Dec	---	---	---	---	None	
242: Niva-----	D	Jan-Dec	---	---	---	---	None	
250: Van Nostern-----	C	Jan-Dec	---	---	---	---	None	
251: Van Nostern-----	C	Jan-Dec	---	---	---	---	None	
255: Van Nostern-----	C	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
255: Bakeoven-----	D	Jan-Dec	Ft	Ft	Ft			
			---	---	---	---	None	
266: Van Nostern-----	C	Jan-Dec		---	---	---	None	
Bakeoven-----	D	Jan-Dec	---	---	---	---	None	
274: Prosser-----	C	Jan-Dec	---	---	---	---	None	
275: Prosser-----	C	Jan-Dec	---	---	---	---	None	
277: Prosser-----	C	Jan-Dec	---	---	---	---	None	
Bakeoven-----	D	Jan-Dec	---	---	---	---	None	
280: Quincy-----	A	Jan-Dec	---	---	---	---	None	
281: Quincy-----	A	Jan-Dec	---	---	---	---	None	
285: Quinton-----	C	Jan-Dec	---	---	---	---	None	
290: Koehler-----	C	Jan-Dec	---	---	---	---	None	
296: Swalecreek-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
297: Swalecreek-----	B	Jan-Dec	Ft	Ft	Ft			
			---	---	---	---	None	
298: Swalecreek-----	B	Jan-Dec	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	None	
299: Swalecreek-----	B	Jan-Dec	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	None	
304: Ritzville-----	B	Jan-Dec	---	---	---	---	None	
305: Ritzville-----	B	Jan-Dec	---	---	---	---	None	
306: Ritzville-----	B	Jan-Dec	---	---	---	---	None	
308: Ralls-----	B	Jan-Dec	---	---	---	---	None	
317: Reilloc-----	D	Jan-Dec	---	---	---	---	None	
Sienna-----	C	Jan-Dec	---	---	---	---	None	
318: Sienna-----	C	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
329: Badge-----	B	Jan-Dec	---	---	---	---	None	
330: Badge-----	B	Jan-Dec	---	---	---	---	None	
343: Shano-----	B	Jan-Dec	---	---	---	---	None	
346: Shano-----	B	Jan-Dec	---	---	---	---	None	
347: Shano-----	B	Jan-Dec	---	---	---	---	None	
348: Shano-----	B	Jan-Dec	---	---	---	---	None	
350: Willis-----	C	Jan-Dec	---	---	---	---	None	
351: Willis-----	C	Jan-Dec	---	---	---	---	None	
352: Willis-----	C	Jan-Dec	---	---	---	---	None	
353: Willis-----	C	Jan-Dec	---	---	---	---	None	
360: Selah-----	C	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
361: Selah-----	C	Jan-Dec	---	---	---	---	None	
362: Selah-----	C	Jan-Dec	---	---	---	---	None	
365: Selah-----	C	Jan-Dec	---	---	---	---	None	
Bakeoven-----	D	Jan-Dec	---	---	---	---	None	
374: Thiessen-----	C	Jan-Dec	---	---	---	---	None	
375: Lickskillet-----	D	Jan-Dec	---	---	---	---	None	
376: Lickskillet-----	D	Jan-Dec	---	---	---	---	None	
377: Lickskillet-----	D	Jan-Dec	---	---	---	---	None	
378: Starbuck-----	D	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
379: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
Rubble land-----	A	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
379: Cheviot-----	B	Jan-Dec	---	---	---	---	None	
380: Cheviot-----	B	Jan-Dec	---	---	---	---	None	
Lickskillet-----	D	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
381: Ralls-----	B	Jan-Dec	---	---	---	---	None	
Cheviot-----	B	Jan-Dec	---	---	---	---	None	
Lickskillet-----	D	Jan-Dec	---	---	---	---	None	
390: Renslow-----	B	Jan-Dec	---	---	---	---	None	
Ralls-----	B	Jan-Dec	---	---	---	---	None	
Wipple-----	C	Jan-Dec	---	---	---	---	None	
391: Broadax-----	B	Jan-Dec	---	---	---	---	None	
Colockum-----	B	Jan-Dec	---	---	---	---	None	
Tronsen-----	C	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
394: Cheviot-----	B	Jan-Dec	Ft	Ft	Ft			
			---	---	---	---	None	
Ralls-----	B	Jan-Dec	---	---	---	---	None	
Wipple-----	C	Jan-Dec	---	---	---	---	None	
395: Cheviot-----	B	Jan-Dec	---	---	---	---	None	
Ralls-----	B	Jan-Dec	---	---	---	---	None	
Wipple-----	C	Jan-Dec	---	---	---	---	None	
396: Renslow-----	B	Jan-Dec	---	---	---	---	None	
Ralls-----	B	Jan-Dec	---	---	---	---	None	
Wipple-----	C	Jan-Dec	---	---	---	---	None	
420: Endicott-----	C	Jan-Dec	---	---	---	---	None	
Moxee-----	D	Jan-Dec	---	---	---	---	None	
421: Endicott-----	C	Jan-Dec	---	---	---	---	None	
Moxee-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
422: Endicott-----	C	Jan-Dec	---	---	---	---	None	
Moxee-----	D	Jan-Dec	---	---	---	---	None	
423: Endicott-----	C	Jan-Dec	---	---	---	---	None	
424: Endicott-----	C	Jan-Dec	---	---	---	---	None	
425: Endicott-----	C	Jan-Dec	---	---	---	---	None	
433: Warden-----	B	Jan-Dec	---	---	---	---	None	
435: Warden-----	B	Jan-Dec	---	---	---	---	None	
436: Warden-----	B	Jan-Dec	---	---	---	---	None	
437: Warden-----	B	Jan-Dec	---	---	---	---	None	
438: Warden-----	B	Jan-Dec	---	---	---	---	None	
440: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
441: Kahlotus-----	B	Jan-Dec	<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
			---	---	---	---	None	
442: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	
443: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	
444: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	
Kennewick-----	B	Jan-Dec	---	---	---	---	None	
445: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	
			---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	
450: Kennewick-----	B	Jan-Dec	---	---	---	---	None	
451: Kennewick-----	B	Jan-Dec	---	---	---	---	None	
453: Kennewick-----	B	Jan-Dec	---	---	---	---	None	
485: Bakeoven-----	D	Jan-Dec	---	---	---	---	None	
487: Bakeoven-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
488: Camaspatch-----	D	Jan-Dec	---	---	---	---	None	
489: Rock Creek-----	D	Jan-Dec	---	---	---	---	None	
495: Konner-----	C	January February March April May	4.0-6.0 2.6-4.0 2.6-4.0 2.6-4.0 4.0-6.0	>6.0 >6.0 >6.0 >6.0 >6.0	---	---	None None None None None	Lc Lc Lc Lc Lc
533: Sagehill-----	B	Jan-Dec	---	---	---	---	None	
534: Sagehill-----	B	Jan-Dec	---	---	---	---	None	
535: Sagehill-----	B	Jan-Dec	---	---	---	---	None	
Kiona-----	B	Jan-Dec	---	---	---	---	None	
536: Sagehill-----	B	Jan-Dec	---	---	---	---	None	
537: Sagehill-----	B	Jan-Dec	---	---	---	---	None	
538: Sagehill-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
540: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
541: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
542: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
543: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
550: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
551: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
552: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
555: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
556: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
557: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
558: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
560: Olex-----	B	Jan-Dec	---	---	---	---	None	
561: Olex-----	B	Jan-Dec	---	---	---	---	None	
562: Olex-----	B	Jan-Dec	---	---	---	---	None	
570: Bolicker-----	B	Jan-Dec	---	---	---	---	None	
571: Bolicker-----	B	Jan-Dec	---	---	---	---	None	
580: Benwy-----	B	Jan-Dec	---	---	---	---	None	
581: Benwy-----	B	Jan-Dec	---	---	---	---	None	
582: Benwy-----	B	Jan-Dec	---	---	---	---	None	
583: Benwy-----	B	Jan-Dec	---	---	---	---	None	
584: Mikkalo-----	C	Jan-Dec	---	---	---	---	None	
Bakeoven-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
585: Mikkalo-----	C	Jan-Dec	---	---	---	---	None	
Bakeoven-----	D	Jan-Dec	---	---	---	---	None	
586: Mikkalo-----	C	Jan-Dec	---	---	---	---	None	
587: Mikkalo-----	C	Jan-Dec	---	---	---	---	None	
588: Mikkalo-----	C	Jan-Dec	---	---	---	---	None	
589: Mikkalo-----	C	Jan-Dec	---	---	---	---	None	
590: Mikkalo-----	C	Jan-Dec	---	---	---	---	None	
591: Lickskillet-----	D	Jan-Dec	---	---	---	---	None	
Mikkalo-----	C	Jan-Dec	---	---	---	---	None	
600: Meloza-----	C	Jan-Dec	---	---	---	---	None	
670: Wato-----	B	Jan-Dec	---	---	---	---	None	
671: Wato-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency
672: Wato-----	B	Jan-Dec	---	---	---	---	None
681: Nansene-----	B	Jan-Dec	---	---	---	---	None
682: Nansene-----	B	Jan-Dec	---	---	---	---	None
700: Urban land-----	D	Jan-Dec	---	---	---	---	None
711: Pits, quarry-----	---	Jan-Dec	---	---	---	---	None
721: Rock outcrop-----	D	Jan-Dec	---	---	---	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None
Haploxerolls-----	B	Jan-Dec	---	---	---	---	None
724C: Haploxerolls-----	B	Jan-Dec	---	---	---	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None
724D: Haploxerolls-----	B	Jan-Dec	---	---	---	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
725: Cauley-----	B	Jan-Dec	---	---	---	---	None	
726: Cauley-----	B	Jan-Dec	---	---	---	---	None	
727: Cauley-----	B	Jan-Dec	---	---	---	---	None	
729: Cauley-----	B	Jan-Dec	---	---	---	---	None	
730: Stacker-----	B	Jan-Dec	---	---	---	---	None	
Horseflat-----	D	Jan-Dec	---	---	---	---	None	
731: Stacker-----	B	Jan-Dec	---	---	---	---	None	
Horseflat-----	D	Jan-Dec	---	---	---	---	None	
732: Stacker-----	B	Jan-Dec	---	---	---	---	None	
Horseflat-----	D	Jan-Dec	---	---	---	---	None	
737: Wind River-----	B	Jan-Dec	---	---	---	---	None	
742: Gwin-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name		Hydro- logic group	Month	Water table		Ponding			Dur
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	
751:				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>			
Lorena-----	C	Jan-Dec	---	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	---	None	
752:									
Lorena-----	C	Jan-Dec	---	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	---	None	
756:									
Walla Walla-----	B	Jan-Dec	---	---	---	---	---	None	
758:									
Walla Walla-----	B	Jan-Dec	---	---	---	---	---	None	
761:									
Balake-----	B	Jan-Dec	---	---	---	---	---	None	
762:									
Balake-----	B	Jan-Dec	---	---	---	---	---	None	
763:									
Balake-----	B	Jan-Dec	---	---	---	---	---	None	
764:									
Balake-----	B	Jan-Dec	---	---	---	---	---	None	
765:									
Balake-----	B	Jan-Dec	---	---	---	---	---	None	
766:									
Gunn-----	B	Jan-Dec	---	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding		
			Upper limit	Lower limit	Surface water depth	Duration	Frequency
766: Galiente-----	C	Jan-Dec	<i>Ft</i>	<i>Ft</i>	<i>Ft</i>		
			---	---	---	---	None
767: Gunn-----	B	Jan-Dec	---	---	---	---	None
			---	---	---	---	None
768: Gunn-----	B	Jan-Dec	---	---	---	---	None
			---	---	---	---	None
769: Aquic Haploxerolls-----	D	Jan-Dec	---	---	---	---	None
			---	---	---	---	None
770: Aquic Haploxerolls-----	D	January	1.3-2.1	>6.0	---	---	None
		February	0.7-1.3	>6.0	---	---	None
		March	0.7-1.3	>6.0	---	---	None
		April	0.7-1.3	>6.0	---	---	None
		May	0.7-1.3	>6.0	---	---	None
		June	0.7-1.3	>6.0	---	---	None
		July	0.7-1.3	>6.0	---	---	None
		August	0.7-1.3	>6.0	---	---	None
		September	1.3-2.1	>6.0	---	---	None
		October	1.3-2.1	>6.0	---	---	None
		November	1.3-2.1	>6.0	---	---	None
		December	1.3-2.1	>6.0	---	---	None
775: Horseflat-----	D	Jan-Dec	---	---	---	---	None
			---	---	---	---	None
776: Horseflat-----	D	Jan-Dec	---	---	---	---	None
			---	---	---	---	None
777: Horseflat-----	D	Jan-Dec	---	---	---	---	None
			---	---	---	---	None

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dura
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
781: Gunn-----	B	Jan-Dec	---	---	Ft	---	None	
782: Gunn-----	B	Jan-Dec	---	---	---	---	None	
783: Gunn-----	B	Jan-Dec	---	---	---	---	None	
790: Fisherhill-----	B	Jan-Dec	---	---	---	---	None	
791: Fisherhill-----	B	Jan-Dec	---	---	---	---	None	
792: Fisherhill-----	B	Jan-Dec	---	---	---	---	None	
793: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
796: Lorena-----	C	Jan-Dec	---	---	---	---	None	
798: Dalig-----	B	Jan-Dec	---	---	---	---	None	
799: Dalig-----	B	Jan-Dec	---	---	---	---	None	
890: Stacker-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
891: Stacker-----	B	Jan-Dec	---	---	---	---	None	
893: Fisherhill-----	B	Jan-Dec	---	---	---	---	None	
894: Fisherhill-----	B	Jan-Dec	---	---	---	---	None	
895: Fisherhill-----	B	Jan-Dec	---	---	---	---	None	
896: Stacker-----	B	Jan-Dec	---	---	---	---	None	
897: Stacker-----	B	Jan-Dec	---	---	---	---	None	
898: Stacker-----	B	Jan-Dec	---	---	---	---	None	
899: Stacker-----	B	Jan-Dec	---	---	---	---	None	
930A: Rockly-----	D	Jan-Dec	---	---	---	---	None	
Lorena-----	C	Jan-Dec	---	---	---	---	None	
930B: Rockly-----	D	Jan-Dec	---	---	---	---	None	
Lorena-----	C	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding				Dura
			Upper limit	Lower limit	Surface water depth	Duration	Frequency		
950: Lorena-----	C	Jan-Dec	---	---	Ft	Ft			
Rockly-----	D	Jan-Dec	---	---	---	---	---	None	
951: Lorena-----	C	Jan-Dec	---	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	---	None	
952: Lorena-----	C	Jan-Dec	---	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	---	None	
969: Goldendale-----	B	Jan-Dec	---	---	---	---	---	None	
969A: Goldendale-----	B	Jan-Dec	---	---	---	---	---	None	
969B: Goldendale-----	B	Jan-Dec	---	---	---	---	---	None	
969C: Goldendale-----	B	Jan-Dec	---	---	---	---	---	None	
970: Oreoke-----	B	Jan-Dec	---	---	---	---	---	None	
Tronsen-----	C	Jan-Dec	---	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
971: Oreoke-----	B	Jan-Dec	---	---	---	---	None	
Tronsen-----	C	Jan-Dec	---	---	---	---	None	
987: Asotin-----	C	Jan-Dec	---	---	---	---	None	
988: Asotin-----	C	Jan-Dec	---	---	---	---	None	
989: Asotin-----	C	Jan-Dec	---	---	---	---	None	
990: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
Lorena-----	C	Jan-Dec	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	None	
991: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
Lorena-----	C	Jan-Dec	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	None	
993A: Goldendale-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
993B: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
993C: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
993D: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
994: Lorena-----	C	Jan-Dec	---	---	---	---	None	
994A: Lorena-----	C	Jan-Dec	---	---	---	---	None	
994B: Lorena-----	C	Jan-Dec	---	---	---	---	None	
994C: Lorena-----	C	Jan-Dec	---	---	---	---	None	
995: Hyprairie-----	B	Jan-Dec	---	---	---	---	None	
996: Hyprairie-----	B	Jan-Dec	---	---	---	---	None	
1000: Tekison-----	C	Jan-Dec	---	---	---	---	None	
1010: Colockum-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
1010: Cheviot-----	B	Jan-Dec	---	---	---	---	None	
1011: Colockum-----	B	Jan-Dec	---	---	---	---	None	
Cheviot-----	B	Jan-Dec	---	---	---	---	None	
1012: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
Tekison-----	C	Jan-Dec	---	---	---	---	None	
1013: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
Tekison-----	C	Jan-Dec	---	---	---	---	None	
1014: Tekison-----	C	Jan-Dec	---	---	---	---	None	
Goldendale-----	B	Jan-Dec	---	---	---	---	None	
1015: Rockly-----	D	Jan-Dec	---	---	---	---	None	
Tekison-----	C	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
1016: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	None	
1017: Tronsen-----	C	Jan-Dec	---	---	---	---	None	
Goldendale-----	B	Jan-Dec	---	---	---	---	None	
Horseflat-----	D	Jan-Dec	---	---	---	---	None	
1018: Tronsen-----	C	Jan-Dec	---	---	---	---	None	
Goodnoe-----	B	Jan-Dec	---	---	---	---	None	
Horseflat-----	D	Jan-Dec	---	---	---	---	None	
1030: Stacker-----	B	Jan-Dec	---	---	---	---	None	
Swalecreek-----	B	Jan-Dec	---	---	---	---	None	
Horseflat-----	D	Jan-Dec	---	---	---	---	None	
1031: Stacker-----	B	Jan-Dec	---	---	---	---	None	
Swalecreek-----	B	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
1031: Horseflat-----	D	Jan-Dec	---	---	<i>Ft</i>	---	None	
1032: Goodnoe-----	B	Jan-Dec	---	---	---	---	None	
Swalecreek-----	B	Jan-Dec	---	---	---	---	None	
Horseflat-----	D	Jan-Dec	---	---	---	---	None	
1042: Cheviot-----	B	Jan-Dec	---	---	---	---	None	
Tronsen-----	C	Jan-Dec	---	---	---	---	None	
1075: Walla Walla-----	B	Jan-Dec	---	---	---	---	None	
Goodnoe-----	B	Jan-Dec	---	---	---	---	None	
1093: Goldendale-----	B	Jan-Dec	---	---	---	---	None	
Lorena-----	C	Jan-Dec	---	---	---	---	None	
1096: Oreoke-----	B	Jan-Dec	---	---	---	---	None	
Goldendale-----	B	Jan-Dec	---	---	---	---	None	
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	

Table 8.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Dur
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	
1097: Tekison-----	C	Jan-Dec	---	---	---	---	None	
Lorena-----	C	Jan-Dec	---	---	---	---	None	
Rockly-----	D	Jan-Dec	---	---	---	---	None	
2961: Renslow-----	B	Jan-Dec	---	---	---	---	None	
2971: Renslow-----	B	Jan-Dec	---	---	---	---	None	
3061: Ritzville-----	B	Jan-Dec	---	---	---	---	None	
3071: Ritzville-----	B	Jan-Dec	---	---	---	---	None	
3081: Ritzville-----	B	Jan-Dec	---	---	---	---	None	
D: Dam-----	---	---	---	---	---	---	---	
W: Water-----	---	---	---	---	---	---	---	

Table 9.---Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern. Data were not estimated.)

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total	
1B: Satus-----	---	---	In ---	---	In 0	In ---	
2C: Satus-----	---	---	---	---	0	---	Moderate
3C: Pird-----	---	---	---	---	0	---	Moderate
4B: Grandpon-----	---	---	---	---	0	---	Moderate
6B: Berson-----	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Moderate
7B: Bocker-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate
Klicko-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate
7C: Sapkin-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate
8C: Berson-----	Paralithic bedrock	40-60	---	Moderately cemented	0	---	Moderate
9: Quincy-----	---	---	---	---	0	---	Low High
9B: Pird-----	---	---	---	---	0	---	Moderate
9C: Quincy-----	---	---	---	---	0	---	Low High
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None
10: Pits, gravel-----	---	---	---	---	0	---	None

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
10B: Andic Haplocreyalfs-----	Lithic bedrock	In	In		In	In		
11: Xerands-----	---	10-40	---	Indurated	0	---	High	Moderate
11A: Xerands-----	---	---	---	---	0	---	Moderate	Moderate
11B: Xerands-----	---	---	---	---	0	---	Moderate	Moderate
11C: Xerands-----	---	---	---	---	0	---	Moderate	Moderate
12: Legall-----	---	---	---	---	0	---	Moderate	Moderate
12A: Tekison-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	--
12B: Maydol-----	---	---	---	---	0	---	Moderate	Moderate
12C: Legall-----	---	---	---	---	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	--
Rubble land-----	---	---	---	---	0	---	None	--
12D: Lyville-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate
12E: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	--
Rubble land-----	---	---	---	---	0	---	None	--
Legall-----	---	---	---	---	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	R
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
		In	In		In	In		
12F: Lyville-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moder
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	
13B: Itat-----	---	---	---	---	0	---	Moderate	Moder
13C: Itat-----	---	---	---	---	0	---	Moderate	Moder
14A: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moder
14B: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moder
15: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moder
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	-
16: Sauter-----	---	---	---	---	0	---	Moderate	Moder
16B: Suta-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moder
16C: Sauter-----	---	---	---	---	0	---	Moderate	Moder
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	-
Rubble land-----	---	---	---	---	0	---	None	-
16E: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	-
Rubble land-----	---	---	---	---	0	---	None	-
Sauter-----	---	---	---	---	0	---	Moderate	Moder
17A: Presher-----	---	---	---	---	0	---	Moderate	Moder

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
17B: Preshers-----	---	In	In		In	In		
17D: Quiden-----	---	---	---	---	0	---	Moderate	Moderate
18A: Kaiders-----	---	---	---	---	0	---	Moderate	Moderate
18B: Kaiders-----	---	---	---	---	0	---	Moderate	Moderate
18C: Kaiders-----	---	---	---	---	0	---	Moderate	Moderate
19: Kiakus-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Munset-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Wahoo-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate
20: Nook-----	---	---	---	---	0	---	Moderate	Moderate
20A: Threecreeks-----	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	Moderate	Moderate
21: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
Rubble land-----	---	---	---	---	0	---	None	---
22: Fluventic Haploxerolls	Strongly contrasting textural stratification	10-60	---	Noncemented	0	---	Low	Moderate
Riverwash-----	---	---	---	---	0	---	None	---

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
23: Gunn-----	---	In	In		In	In		
		---	---	---	0	---	Moderate	Moderate
23A: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
23B: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
23C: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
24: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
Itat-----	---	---	---	---	0	---	Moderate	Moderate
25: Leidl-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Dillcourt-----	---	---	---	---	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	--
25A: Leidl-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
25B: Leidl-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Oreoke-----	---	---	---	---	0	---	Moderate	Moderate
25C: Leidl-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Dillcourt-----	---	---	---	---	0	---	Moderate	Moderate
26: Mazdale-----	---	---	---	---	0	---	Moderate	Moderate
26C: Mazdale-----	---	---	---	---	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	--
Rubble land-----	---	---	---	---	0	---	None	--

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
		In	In		In	In		
26E: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
Rubble land-----	---	---	---	---	0	---	None	---
Mazdale-----	---	---	---	---	0	---	Moderate	Moderate
27B: Yedlick-----	---	---	---	---	0	---	Moderate	Moderate
28: Trelk-----	---	---	---	---	0	---	Moderate	Moderate
30: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
Kiakus-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
30A: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
30B: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
32A: Beezee-----	---	---	---	---	0	---	Moderate	Moderate
32B: Beezee-----	---	---	---	---	0	---	Moderate	Moderate
33: Riverwash-----	---	---	---	---	0	---	None	---
33A: Haploxerolls-----	---	---	---	---	0	---	Moderate	Moderate
Fluvaquents-----	---	---	---	---	0	---	High	High
36: Jebe-----	---	---	---	---	0	---	Moderate	Moderate

Table 9. --Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk Unconsolidated soils
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
36C: Jebe-----	---	---	In	In	---	In		
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	Moderate
Rubble land-----	---	---	---	---	0	---	None	
39A: Hyprairie-----	---	---	---	---	0	---	Moderate	Moderate
39B: Hyprairie-----	---	---	---	---	0	---	Moderate	Moderate
39C: Hyprairie-----	---	---	---	---	0	---	Moderate	Moderate
39D: Hyprairie-----	---	---	---	---	0	---	Moderate	Moderate
41: Oreoke-----	---	---	---	---	0	---	Moderate	Moderate
Legall-----	---	---	---	---	0	---	Moderate	Moderate
42: Oreoke-----	---	---	---	---	0	---	Moderate	Moderate
Beezee-----	---	---	---	---	0	---	Moderate	Moderate
43: Oreoke-----	---	---	---	---	0	---	Moderate	Moderate
Colockum-----	---	---	---	---	0	---	Moderate	High
49A: Kiakus-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
49B: Kiakus-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
49C: Kiakus-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
49D: Kiakus-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
49E: Kiakus-----	Lithic bedrock	In 20-40	In ---		In	In		
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
55: Firoke-----	---	---	---	---	0	---	Moderate	Moderate
55A: Kingtain-----	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	Moderate	Moderate
57: Firoke-----	---	---	---	---	0	---	Moderate	Moderate
59B: Bercumb-----	---	---	---	---	0	---	High	Moderate
59C: Bercumb-----	---	---	---	---	0	---	High	Moderate
59D: Bercumb-----	---	---	---	---	0	---	High	Moderate
61: Grayland-----	---	---	---	---	0	---	High	Moderate
63: Fanal-----	---	---	---	---	0	---	Moderate	Moderate
65: Leidl-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
65B: Dystroxerepts-----	Lithic bedrock	10-40	---	Indurated	0	---	None	Moderate
66: Flotag-----	---	---	---	---	0	---	Moderate	Moderate
68: Fluvaquentic Endoaquolls-----	---	---	---	---	0	---	High	High

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk to structure
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
		In	In		In	In		
69: Goldendale-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate
69A: Goldendale-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate
69B: Goldendale-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate
69C: Goldendale-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate
72: Aqualfs-----	---	---	---	---	0	---	High	Moderate
73A: Dalig-----	---	---	---	---	0	---	Moderate	Moderate
73B: Dalig-----	---	---	---	---	0	---	Moderate	Moderate
73C: Dalig-----	---	---	---	---	0	---	Moderate	Moderate
74A: Tigit-----	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	Moderate
74B: Tigit-----	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	Moderate
74C: Tigit-----	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	Moderate
76: Underwood-----	---	---	---	---	0	---	Moderate	Moderate
76A: Underwood-----	---	---	---	---	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
76B: Underwood-----	---	In ---	In ---	---	In 0	In ---		
76C: Underwood-----	---	---	---	---	0	---	Moderate	Moderate
77: McGowan-----	---	---	---	---	0	---	Moderate	Moderate
77A: McGowan-----	---	---	---	---	0	---	Moderate	Moderate
80: Troutlake-----	---	---	---	---	0	---	Moderate	Moderate
81: Sugarbowl-----	---	---	---	---	0	---	High	Moderate
82B: Kingtain-----	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	Moderate	Moderate
82D: Kingtain-----	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	Moderate	Moderate
82E: Kingtain-----	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
83: Volash-----	Lithic bedrock	40-60	---	Indurated	0	---	High	Moderate
84: Trouter-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
84A: Trouter-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
86A: Chemawa-----	---	---	---	---	0	---	High	Moderate
86B: Chemawa-----	---	---	---	---	0	---	High	Moderate
86C: Chemawa-----	---	---	---	---	0	---	High	Moderate
86D: Chemawa-----	---	---	---	---	0	---	High	Moderate
87A: Eagreek-----	---	---	---	---	0	---	Moderate	Moderate
88A: Timberhead-----	---	---	---	---	0	---	High	Moderate
88B: Timberhead-----	---	---	---	---	0	---	High	Moderate
89: McElroy-----	---	---	---	---	0	---	Moderate	Moderate
89B: McElroy-----	---	---	---	---	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
90: Hood-----	---	---	---	---	0	---	Low	Moderate
90A: Hood-----	---	---	---	---	0	---	Low	Moderate
90B: Hood-----	---	---	---	---	0	---	Low	Moderate
90C: Hood-----	---	---	---	---	0	---	Low	Moderate

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
92: Husum-----		<i>In</i>	<i>In</i>		<i>In</i>	<i>In</i>		
	Strongly contrasting textural stratification	24-36	---	Noncemented	0	---	Moderate	Moderate
92A: Husum-----	Strongly contrasting textural stratification	24-36	---	Noncemented	0	---	Moderate	Moderate
92B: Husum-----	Strongly contrasting textural stratification	24-36	---	Noncemented	0	---	Moderate	Moderate
93: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
93A: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
93B: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
93C: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
93D: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
94: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
94A: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
94B: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
94C: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
94E: Lorena-----	Lithic bedrock	In	In		In	In		
		20-40	---	Indurated	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
95: Konert-----	---	---	---	---	0	---	Moderate	Moderate
95A: Konert-----	---	---	---	---	0	---	Moderate	Moderate
96: Blockhouse-----	---	---	---	---	0	---	Moderate	Moderate
97: Munset-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
97A: Setnum-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
97B: Blockhouse-----	---	---	---	---	0	---	Moderate	Moderate
Munset-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
99: Dallesport-----	---	---	---	---	0	---	Moderate	Moderate
100: Dallesport-----	---	---	---	---	0	---	Moderate	Moderate
101: Dallesport-----	---	---	---	---	0	---	Moderate	Moderate
102: Dallesport-----	---	---	---	---	0	---	Moderate	Moderate
103: Dallesport-----	---	---	---	---	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	--
104: Dallesport-----	---	---	---	---	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	--

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
105: Ewall-----	---	In ---	In ---	---	In 0	In ---	---	Uncor- ste-
106: Ewall-----	---	---	---	---	0	---	Low	Moderate
107: Ewall-----	---	---	---	---	0	---	Low	Moderate
108: Ewall-----	---	---	---	---	0	---	Low	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
109: Ewall-----	---	---	---	---	0	---	Low	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
113B: Tekison-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate
113C: Tekison-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate
115: Aguolls-----	Lithic bedrock	40-60	---	Indurated	0	---	High	High
116: Aguolls-----	Lithic bedrock	40-60	---	Indurated	0	---	High	High
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
120: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
Haploxerolls-----	Lithic bedrock	10-40	---	Indurated	0	---	Moderate	Moderate
121: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
121: Haploxerolls-----	---	In ---	In ---	---	In 0	In ---		
122: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
Haploxerolls-----	---	---	---	---	0	---	Moderate	Moderate
123A: Galiente-----	Abrupt textural change	10-20	---	Noncemented	0	---	Moderate	High
125: Scooteney-----	---	---	---	---	---	---	High	High
127: Scooteney-----	---	---	---	---	---	---	High	High
130: Oxy-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate
131: Onyx-----	---	---	---	---	0	---	High	Moderate
132: Esquatzel-----	---	---	---	---	---	---	High	High
136: Bickleton-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	High
137: Bickleton-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	High
140: Broadax-----	---	---	---	---	0	---	High	High
141: Broadax-----	---	---	---	---	0	---	High	High
150: Morrow-----	Lithic bedrock	20-40	---	Indurated	0	---	High	High
151: Morrow-----	Lithic bedrock	20-40	---	Indurated	0	---	High	High

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of unconsolidated soil
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
		In	In		In	In		
155: Morrow-----	Lithic bedrock	20-40	---	Indurated	0	---	High	High
Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate
159B: Panak-----	---	---	---	---	0	---	Moderate	Moderate
159C: Panak-----	---	---	---	---	0	---	Moderate	Moderate
159D: Panak-----	---	---	---	---	0	---	Moderate	Moderate
161: Van Nostern-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate
181: Umapine-----	---	---	---	---	0	---	High	High
187: Cleman-----	---	---	---	---	0	---	High	High
190: Weirman-----	Strongly contrasting textural stratification	4-10	---	Noncemented	0	---	Low	Moderate
193: Swalecreek-----	---	---	---	---	0	---	Moderate	Moderate
194: Swalecreek-----	---	---	---	---	0	---	Moderate	Moderate
195: Swalecreek-----	---	---	---	---	0	---	Moderate	Moderate
Niva-----	Duripan	10-20	4-17	Indurated	0	---	Moderate	Moderate
196: Mondovi-----	---	---	---	---	0	---	High	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
200: Malaga-----	Strongly contrasting textural stratification	In	In		In	In		
		10-20	---	Noncemented	0	---	Low	Moderate
211: Hezel-----		---	---	---	0	---	Low	High
212: Hezel-----		---	---	---	0	---	Low	High
213: Hezel-----	---	---	---	---	0	---	Low	High
225: Kiona-----	---	---	---	---	0	---	Moderate	High
226: Kiona-----	---	---	---	---	0	---	Moderate	High
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
227: Cheviot-----	---	---	---	---	0	---	Moderate	Moderate
228: Borfin-----	Duripan	20-36	4-17	Indurated	0	---	Moderate	High
	Lithic bedrock	24-40	---	Indurated				
229: Cheviot-----	---	---	---	---	0	---	Moderate	Moderate
Wipple-----	Abrupt textural change	10-20	---	Noncemented	0	---	Low	High
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
230: Cheviot-----	---	---	---	---	0	---	Moderate	Moderate
Ralls-----	---	---	---	---	0	---	Moderate	High
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
240: Niva-----	Duripan	In	In		In	In		
		14-20	4-17	Indurated	0	---	Moderate	Moderate
241: Niva-----	Duripan	10-20	4-17	Indurated	0	---	Moderate	Moderate
242: Niva-----	Duripan	10-20	4-17	Indurated	0	---	Moderate	Moderate
250: Van Nostern-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate
251: Van Nostern-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate
255: Van Nostern-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate
Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate
266: Van Nostern-----	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate
Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate
274: Prosser-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
275: Prosser-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
277: Prosser-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate
280: Quincy-----	---	---	---	---	0	---	Low	High
281: Quincy-----	---	---	---	---	0	---	Low	High
285: Quinton-----	Lithic bedrock	20-40	---	Indurated	0	---	Low	High

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk Uncon- ste
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
290: Koehler-----	Duripan	In 20-40	In 4-17		In 0	In ---		High
296: Swalecreek-----	---	---	---	---	0	---	Moderate	Moderate
297: Swalecreek-----	---	---	---	---	0	---	Moderate	Moderate
298: Swalecreek-----	---	---	---	---	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
299: Swalecreek-----	---	---	---	---	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
304: Ritzville-----	---	---	---	---	0	---	High	High
305: Ritzville-----	---	---	---	---	0	---	High	High
306: Ritzville-----	---	---	---	---	0	---	High	High
308: Ralls-----	---	---	---	---	0	---	Moderate	High
317: Reilloc-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
Sienna-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
318: Sienna-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
329: Badge-----	---	---	---	---	0	---	Moderate	High
330: Badge-----	---	---	---	---	0	---	Moderate	High

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer					Subsidence		Potential for frost action	Risk of steep erosion
	Kind	Depth to top	Thickness	Hardness	Initial	Total			
343: Shano-----	---	---	In		In	In			
346: Shano-----	---	---	---	---	0	---	High	High	High
347: Shano-----	---	---	---	---	0	---	High	High	High
348: Shano-----	---	---	---	---	0	---	High	High	High
350: Willis-----	Duripan	20-40	4-17	Indurated	0	---	High	High	High
351: Willis-----	Duripan	20-40	4-17	Indurated	0	---	High	High	High
352: Willis-----	Duripan	20-40	4-17	Indurated	0	---	High	High	High
353: Willis-----	Duripan	20-40	4-17	Indurated	0	---	High	High	High
360: Selah-----	Duripan	20-40	4-17	Indurated	0	---	High	High	High
361: Selah-----	Lithic bedrock	24-57	---	Indurated					
362: Selah-----	Duripan	20-40	4-17	Indurated	0	---	High	High	High
365: Selah-----	Lithic bedrock	24-57	---	Indurated					
Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	High	High	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
		In	In		In	In		
374: Thiessen-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
375: Lickskillet-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
376: Lickskillet-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
377: Lickskillet-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
378: Starbuck-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
379: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
Rubble land-----	---	---	---	---	0	---	None	---
Cheviot-----	---	---	---	---	0	---	Moderate	Moderate
380: Cheviot-----	---	---	---	---	0	---	Moderate	Moderate
Lickskillet-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
381: Ralls-----	---	---	---	---	0	---	Moderate	High
Cheviot-----	---	---	---	---	0	---	Moderate	Moderate
Lickskillet-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
390: Renslow-----	---	---	---	---	0	---	High	High
Ralls-----	---	---	---	---	0	---	Moderate	High
Wipple-----	Abrupt textural change	10-20	---	Noncemented	0	---	Low	High

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of ste
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
391: Broadax----- Colockum----- Tronsen----- Strongly contrasting textural stratification		In	In		In	In		
	---	---	---	---	0	---	High	High
	---	---	---	---	0	---	Moderate	High
		7-11	---	Noncemented	0	---	Moderate	Moderate
394: Cheviot----- Ralls----- Wipple----- Abrupt textural change	---	---	---	---	0	---	Moderate	Moderate
	---	---	---	---	0	---	Moderate	High
	10-20	---	---	Noncemented	0	---	Low	High
395: Cheviot----- Ralls----- Wipple----- Abrupt textural change	---	---	---	---	0	---	Moderate	Moderate
	---	---	---	---	0	---	Moderate	High
	10-20	---	---	Noncemented	0	---	Low	High
396: Renslow----- Ralls----- Wipple----- Abrupt textural change	---	---	---	---	0	---	High	High
	---	---	---	---	0	---	Moderate	High
	10-20	---	---	Noncemented	0	---	Low	High
420: Endicott----- Moxee----- 421: Endicott----- Moxee----- 422: Endicott----- Duripan	Duripan	20-40	4-17	Indurated	0	---	High	High
	Duripan	10-20	0-3	Indurated	0	---	High	High
	Duripan	20-40	4-17	Strongly cemented	0	---	High	High
	Duripan	10-20	0-3	Indurated	0	---	High	High
422: Endicott----- Duripan	Duripan	20-40	4-17	Strongly cemented	0	---	High	High

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer					Subsidence		Potential for frost action	Risk of Uncon- solidated soil
	Kind	Depth to top	Thickness	Hardness	Initial	Total			
					In	In			
422: Moxee-----	Duripan	In 10-20	In 0-3	Indurated	In 0	In ---	High	High	
423: Endicott-----	Duripan	20-40	4-17	Strongly cemented	0	---	High	High	
424: Endicott-----	Duripan	20-40	4-17	Strongly cemented	0	---	High	High	
425: Endicott-----	Duripan	20-40	4-17	Strongly cemented	0	---	High	High	
433: Warden-----	---	---	---	---	0	---	High	High	
435: Warden-----	---	---	---	---	0	---	High	High	
436: Warden-----	---	---	---	---	0	---	High	High	
437: Warden-----	---	---	---	---	0	---	High	High	
438: Warden-----	---	---	---	---	0	---	High	High	
440: Kahlotus-----	---	---	---	---	0	---	Moderate	High	
441: Kahlotus-----	---	---	---	---	0	---	Moderate	High	
442: Kahlotus-----	---	---	---	---	0	---	Moderate	High	
443: Kahlotus-----	---	---	---	---	0	---	Moderate	High	
444: Kahlotus-----	---	---	---	---	0	---	Moderate	High	
Kennewick-----	---	---	---	---	0	---	High	High	
445: Kahlotus-----	---	---	---	---	0	---	Moderate	High	

Table 9.---Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of unconsolidated soil
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
445: Rock outcrop-----	Lithic bedrock	In	In		In	In		
450: Kennewick-----	---	0-0	---	Indurated	0	---	None	---
451: Kennewick-----	---	---	---	---	0	---	High	High
453: Kennewick-----	---	---	---	---	0	---	High	High
485: Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate
487: Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate
488: Camaspatch-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Low
489: Rock Creek-----	Lithic bedrock	8-20	---	Indurated	0	---	Moderate	Moderate
495: Konner-----	---	---	---	---	0	---	High	Moderate
533: Sagehill-----	---	---	---	---	0	---	High	High
534: Sagehill-----	---	---	---	---	0	---	High	High
535: Sagehill-----	---	---	---	---	0	---	High	High
Kiona-----	---	---	---	---	0	---	Moderate	High
536: Sagehill-----	---	---	---	---	0	---	High	High
537: Sagehill-----	---	---	---	---	0	---	High	High
538: Sagehill-----	---	---	---	---	0	---	High	High

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of Uncon- solidated soil
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
540: Walla Walla-----	---	In	In		In	In		
541: Walla Walla-----	---	---	---	---	0	---	High	High
542: Walla Walla-----	---	---	---	---	0	---	High	High
543: Walla Walla-----	---	---	---	---	0	---	High	High
550: Walla Walla-----	Duripan	40-60	---	Indurated	0	---	High	High
551: Walla Walla-----	Duripan	40-60	---	Indurated	0	---	High	High
552: Walla Walla-----	Duripan	40-60	---	Indurated	0	---	High	High
555: Walla Walla-----	---	---	---	---	0	---	High	High
556: Walla Walla-----	---	---	---	---	0	---	High	High
557: Walla Walla-----	---	---	---	---	0	---	High	High
558: Walla Walla-----	---	---	---	---	0	---	High	High
560: Olex-----	---	---	---	---	0	---	Moderate	Moderate
561: Olex-----	---	---	---	---	0	---	Moderate	Moderate
562: Olex-----	---	---	---	---	0	---	Moderate	Moderate

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of uncon- solidated
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
570: Bolicker-----	---	In ---	In ---	---	In 0	In ---	High	High
571: Bolicker-----	---	---	---	---	0	---	High	High
580: Benwy-----	---	---	---	---	0	---	Moderate	High
581: Benwy-----	---	---	---	---	0	---	Moderate	High
582: Benwy-----	---	---	---	---	0	---	Moderate	High
583: Benwy-----	Duripan	40-60	---	Indurated	0	---	Moderate	High
584: Mikkalo-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate
585: Mikkalo-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
Bakeoven-----	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate
586: Mikkalo-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
587: Mikkalo-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
588: Mikkalo-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
589: Mikkalo-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
590: Mikkalo-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
591: Lickskillet-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
591: Mikkalo-----	Lithic bedrock	In 20-40	In ---		In 0	In ---		
600: Meloza-----	---	---	---	Indurated ---			Moderate	High
670: Wato-----	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	Moderate	High
671: Wato-----	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	Moderate	Moderate
672: Wato-----	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	Moderate	Moderate
681: Nansene-----	---	---	---	---	0	---	High	High
682: Nansene-----	---	---	---	---	0	---	High	High
700: Urban land-----	---	---	---	---	0	---	None	---
711: Pits, quarry-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
721: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
Rubble land-----	---	---	---	---	0	---	None	---
Haploxerolls-----	---	---	---	---	0	---	Moderate	Moderate
724C: Haploxerolls-----	---	---	---	---	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of Uncon- solidation
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
724C: Rubble land-----	---	In	In		In	In		
		---	---	---	0	---	None	---
724D: Haploxerolls-----	---	---	---	---	0	---	Moderate	Moderate
Rubble land-----	---	---	---	---	0	---	None	---
725: Cauley-----	---	---	---	---	0	---	Moderate	Moderate
726: Cauley-----	---	---	---	---	0	---	Moderate	Moderate
727: Cauley-----	---	---	---	---	0	---	Moderate	Moderate
729: Cauley-----	---	---	---	---	0	---	Moderate	Moderate
730: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Horseflat-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
731: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Horseflat-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
732: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Horseflat-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
737: Wind River-----	---	---	---	---	0	---	Low	Moderate
742: Gwin-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate
751: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
		In	In		In	In		
752: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
756: Walla Walla-----	---	---	---	---	0	---	High	High
758: Walla Walla-----	---	---	---	---	0	---	High	High
761: Balake-----	---	---	---	---	0	---	Moderate	Moderate
762: Balake-----	---	---	---	---	0	---	Moderate	Moderate
763: Balake-----	---	---	---	---	0	---	Moderate	Moderate
764: Balake-----	---	---	---	---	0	---	Moderate	Moderate
765: Balake-----	---	---	---	---	0	---	Moderate	Moderate
766: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
Galiente-----	Abrupt textural change	10-20	---	Noncemented	0	---	Moderate	High
767: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
Galiente-----	Abrupt textural change	10-20	---	Noncemented	0	---	Moderate	High
768: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
Galiente-----	Abrupt textural change	10-20	---	Noncemented	0	---	Moderate	High
769: Aquic Haploxerolls-----	---	---	---	---	0	---	High	High

Table 9.---Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk Uncon- ste-
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
775: Horseflat-----	Lithic bedrock	In	In		In	In		
		12-20	---	Indurated	0	---	Moderate	Moderate
776: Horseflat-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
777: Horseflat-----	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate
781: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
782: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
783: Gunn-----	---	---	---	---	0	---	Moderate	Moderate
790: Fisherhill-----	---	---	---	---	0	---	Moderate	Moderate
791: Fisherhill-----	---	---	---	---	0	---	Moderate	Moderate
792: Fisherhill-----	---	---	---	---	0	---	Moderate	Moderate
793: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
796: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
798: Dalig-----	---	---	---	---	0	---	Moderate	Moderate
799: Dalig-----	---	---	---	---	0	---	Moderate	Moderate
890: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
891: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
893: Fisherhill-----	---	In ---	In ---		In	In		
894: Fisherhill-----	---	---	---	---	0	---	Moderate	Moderate
895: Fisherhill-----	---	---	---	---	0	---	Moderate	Moderate
896: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
897: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
898: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
899: Stacker-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
930A: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
930B: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
950: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
951: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
952: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
969: Goldendale-----	Lithic bedrock	In 40-60	In ---		In	In		
969A: Goldendale-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate
969B: Goldendale-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate
969C: Goldendale-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate
970: Oreoke-----	---	---	---	---	0	---	Moderate	Moderate
Tronsen-----	Strongly contrasting textural stratification	7-11	---	Noncemented	0	---	Moderate	Moderate
971: Oreoke-----	---	---	---	---	0	---	Moderate	Moderate
Tronsen-----	Strongly contrasting textural stratification	7-11	---	Noncemented	0	---	Moderate	Moderate
987: Asotin-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
988: Asotin-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
989: Asotin-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High
990: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
		In	In		In	In		
990: Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
991: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
Rockly-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
993A: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
993B: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
993C: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
993D: Goldendale-----	---	---	---	---	0	---	Moderate	Moderate
994: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
994A: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
994B: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
994C: Lorena-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
995: Hyprairie-----	---	---	---	---	0	---	Moderate	Moderate
996: Hyprairie-----	---	---	---	---	0	---	Moderate	Moderate
1000: Tekison-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate

Table 9.---Soil Features---Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
1010: Colockum----- Cheviot-----	---	In	In		In	In		
		---	---	---	0	---	Moderate	High
		---	---	---	0	---	Moderate	Moderate
1011: Colockum----- Cheviot-----	---	---	---	---	0	---	Moderate	High
		---	---	---	0	---	Moderate	Moderate
		---	---	---				
1012: Goldendale----- Tekison-----	---	---	---	---	0	---	Moderate	Moderate
		---	---	---	0	---	Moderate	Moderate
		10-20	---	Noncemented	0	---	Moderate	Moderate
1013: Goldendale----- Tekison-----	---	---	---	---	0	---	Moderate	Moderate
		10-20	---	Noncemented	0	---	Moderate	Moderate
1014: Tekison----- Goldendale-----	Strongly contrasting textural stratification	10-20	---	Noncemented	0	---	Moderate	Moderate
1015: Rockly----- Tekison-----	Lithic bedrock	5-12	---	Indurated	0	---	Moderate	Moderate
		10-20	---	Noncemented	0	---	Moderate	Moderate
Rock outcrop----- 1016: Goldendale-----	Lithic bedrock	0-0	---	Indurated	0	---	None	---
		---	---	---	0	---	Moderate	Moderate

Table 9.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of unconsolidated soil
	Kind	Depth to top	Thickness	Hardness	Initial	Total		
1042: Tronsen-----	Strongly contrasting textural stratification	In	In		In	In		
1075: Walla Walla-----	---	7-11	---	Noncemented	0	---	Moderate	Moderate
1093: Goldendale-----	---	---	---	---	0	---	High	High
1096: Oreoke-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
1097: Tekison-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate
2961: Renslow-----	Lithic bedrock	40-60	---	Indurated	0	---	High	High
3061: Ritzville-----	Lithic bedrock	40-60	---	Indurated	0	---	High	High
3071: Ritzville-----	Lithic bedrock	40-60	---	Indurated	0	---	High	High

Table 10.--Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Andic Haplocryalfs-----	Andic Haplocryalfs
Aqualfs-----	Aqualfs
Aquic Haploxerolls-----	Aquic Haploxerolls
Aquolls-----	Aquolls
Asotin-----	Coarse-loamy, mixed, superactive, mesic Calcic Haploxerolls
Badge-----	Loamy-skeletal, mixed, superactive, mesic Typic Argixerolls
Bakeoven-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Balake-----	Loamy-skeletal, mixed, superactive, mesic Ultic Argixerolls
Beezee-----	Loamy-skeletal, mixed, superactive, mesic Ultic Argixerolls
Benwy-----	Fine-loamy, mixed, superactive, mesic Calciargidic Argixerolls
Bercumb-----	Coarse-loamy, isotic, frigid Andic Dystroxerepts
Berson-----	Loamy-skeletal, isotic, frigid Andic Argixerolls
Bickleton-----	Fine-loamy, mixed, superactive, mesic Calcic Haploxerolls
Blockhouse-----	Fine-loamy, mixed, superactive, mesic Pachic Argixerolls
Bocker-----	Loamy-skeletal, mixed, superactive, frigid Lithic Haploxerolls
Bolicker-----	Coarse-loamy, mixed, superactive, mesic Calcic Haploxerolls
Borfin-----	Clayey-skeletal, smectitic, mesic Abruptic Argiduridic Durixerolls
Broadax-----	Fine-silty, mixed, superactive, mesic Calcic Argixerolls
Camaspatch-----	Clayey-skeletal, smectitic, mesic Lithic Argixerolls
Cauley-----	Fine-loamy, mixed, superactive, mesic Ultic Haploxerolls
Chemawa-----	Ashy, amorphic, mesic Humic Vitriixerands
Cheviot-----	Loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
Cleman-----	Coarse-loamy, mixed, superactive, mesic Torrifluventic Haploxerolls
Colockum-----	Fine-loamy, mixed, superactive, mesic Calcic Argixerolls
Dalig-----	Fine-loamy, mixed, superactive, mesic Ultic Haploxeralfs
Dallesport-----	Sandy-skeletal, mixed, mesic Typic Haploxerolls
Dillcourt-----	Loamy-skeletal, mixed, superactive, mesic Pachic Argixerolls
Dystroxerepts-----	Dystroxerepts
Eagreek-----	Fine-loamy, mixed, superactive, mesic Typic Dystroxerepts
Endicott-----	Coarse-silty, mixed, superactive, mesic Haplic Durixerolls
*Esquatzel-----	Coarse-silty, mixed, superactive, mesic Torrifluventic Haploxerolls
Ewall-----	Mixed, mesic Typic Xeropsammments
Fanal-----	Coarse-loamy, mixed, superactive, mesic Vitrandic Haploxerolls
Firoke-----	Ashy-skeletal, amorphic, frigid Humic Vitriixerands
Fisherhill-----	Fine-loamy, mixed, superactive, mesic Ultic Argixerolls
Flotag-----	Coarse-loamy, isotic, mesic Vitrandic Dystroxerepts
Fluvaquentic Endoaquolls	Fluvaquentic Endoaquolls
Fluvaquents-----	Fluvaquents
Fluventic Haploxerolls---	Fluventic Haploxerolls
Galiente-----	Fine, smectitic, mesic Ultic Palexeralfs
Goldendale-----	Fine-loamy, mixed, superactive, mesic Ultic Argixerolls
Goodnoe-----	Loamy-skeletal, mixed, superactive, mesic Typic Argixerolls
Grandpon-----	Ashy over loamy-skeletal, amorphic over isotic, frigid Humic Vitriixerands
Grayland-----	Fine, mixed, superactive, frigid Argiaquic Argialbolls
Gunn-----	Fine-loamy, mixed, superactive, mesic Ultic Haploxeralfs
Gwin-----	Loamy-skeletal, mixed, superactive, mesic Lithic Argixerolls
Haploxerolls-----	Haploxerolls
Hezel-----	Sandy over loamy, mixed, superactive, nonacid, mesic Xeric Torriorthents
Hood-----	Fine-loamy, mixed, superactive, mesic Ultic Haploxeralfs
Horseflat-----	Loamy-skeletal, mixed, superactive, mesic Lithic Argixerolls
Husum-----	Ashy-skeletal over sandy or sandy-skeletal, amorphic over isotic, mesic Humic Vitriixerands
Hyprairie-----	Fine-loamy, mixed, superactive, mesic Pachic Ultic Argixerolls
Itat-----	Loamy-skeletal, mixed, superactive, mesic Typic Haploxerepts
Jebe-----	Loamy-skeletal, mixed, superactive, mesic Ultic Argixerolls
Kahlotus-----	Coarse-silty, mixed, superactive, mesic Aridic Haploxerolls
Kaiders-----	Fine-loamy, mixed, superactive, frigid Ultic Haploxeralfs
Kennewick-----	Coarse-silty, mixed, superactive, calcareous, mesic Xeric Torriorthents
Kiakus-----	Fine-loamy, mixed, superactive, mesic Pachic Ultic Argixerolls
Kingtain-----	Ashy-skeletal, amorphic, frigid Alfic Humic Vitriixerands

Table 10.--Taxonomic Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Kiona-----	Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Klicko-----	Coarse-loamy, mixed, superactive, frigid Vitrandic Haploxerolls
Koehler-----	Sandy, mixed, mesic Xeric Haplodurids
Konert-----	Fine, mixed, superactive, mesic Vertic Argiaquolls
Konner-----	Fine-loamy, mixed, superactive, mesic Cumulic Endoaquolls
Legall-----	Loamy-skeletal, mixed, superactive, mesic Ultic Argixerolls
Leidl-----	Loamy-skeletal, mixed, superactive, mesic Vitrandic Argixerolls
Lickskillet-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Lorena-----	Fine-loamy, mixed, superactive, mesic Ultic Argixerolls
Lyville-----	Loamy-skeletal, mixed, superactive, mesic Ultic Haploxerolls
Malaga-----	Sandy-skeletal, mixed, mesic Xeric Haplocambids
Maydol-----	Fine-loamy, mixed, superactive, mesic Ultic Haploxerolls
Mazdale-----	Loamy-skeletal, isotic, mesic Vitrandic Dystroxerepts
McElroy-----	Loamy-skeletal, isotic, mesic Andic Dystroxerepts
McGowan-----	Fine-loamy, mixed, superactive, mesic Vitrandic Haploxeralfs
Meloz-----	Fine, smectitic, mesic Torrtic Argixerolls
Mikkalo-----	Coarse-silty, mixed, superactive, mesic Calcic Haploxerolls
Mondovi-----	Coarse-silty, mixed, superactive, mesic Cumulic Haploxerolls
Morrow-----	Fine-silty, mixed, superactive, mesic Calcic Argixerolls
Moxee-----	Loamy, mixed, superactive, mesic, shallow Cambic Durixerolls
Munset-----	Fine, mixed, superactive, mesic Typic Albaqualfs
Nansene-----	Coarse-silty, mixed, superactive, mesic Pachic Haploxerolls
Niva-----	Clayey, smectitic, mesic, shallow Typic Durixerolls
Nook-----	Fine-loamy, mixed, superactive, mesic Cumulic Ultic Haploxerolls
Olex-----	Loamy-skeletal, mixed, superactive, mesic Calcic Haploxerolls
Onyx-----	Coarse-silty, mixed, superactive, mesic Cumulic Haploxerolls
Oreoke-----	Loamy-skeletal, mixed, superactive, mesic Pachic Ultic Argixerolls
Oxy-----	Fine-loamy, mixed, superactive, mesic Cumulic Haploxerolls
Panak-----	Fine-loamy, isotic, frigid Vitrandic Haploxeralfs
Pird-----	Ashy-skeletal, mixed Humic Xeric Vitricryands
Presher-----	Fine-loamy, mixed, superactive, mesic Typic Haploxerepts
Prosser-----	Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids
Quiden-----	Fine-loamy, mixed, superactive, mesic Ultic Argixerolls
Quincy-----	Mixed, mesic Xeric Torripsamments
Quinton-----	Mixed, mesic Xeric Torripsamments
Ralls-----	Fine-loamy, mixed, superactive, mesic Aridic Argixerolls
Reilloc-----	Loamy-skeletal, mixed, superactive, mesic, shallow Lithic Ultic Argixerolls
Renslow-----	Coarse-silty, mixed, superactive, mesic Calciargidic Argixerolls
Ritzville-----	Coarse-silty, mixed, superactive, mesic Calcic Haploxerolls
Rock Creek-----	Clayey-skeletal, smectitic, mesic Lithic Mollic Haploxeralfs
Rockly-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Sagehill-----	Coarse-loamy, mixed, superactive, mesic Xeric Haplocalcids
Sapkin-----	Loamy-skeletal, mixed, superactive, frigid Ultic Argixerolls
Satus-----	Loamy-skeletal, isotic, frigid Andic Haploxeralfs
Sauter-----	Loamy-skeletal, mixed, superactive, mesic Ultic Argixerolls
Scooteney-----	Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids
Selah-----	Fine-loamy, mixed, superactive, mesic Argiduridic Durixerolls
Setnum-----	Fine, mixed, superactive, mesic Xeric Argialbolls
Shano-----	Coarse-silty, mixed, superactive, mesic Xeric Haplocambids
Sienna-----	Loamy-skeletal, mixed, superactive, mesic Ultic Argixerolls
Stacker-----	Fine-loamy, mixed, superactive, mesic Ultic Argixerolls
Starbuck-----	Loamy, mixed, superactive, mesic Lithic Xeric Haplocambids
Sugarbowl-----	Ashy, amorphic, frigid Humic Vitrixerands
Suta-----	Loamy-skeletal, mixed, superactive, mesic Ultic Haploxerolls
Swalecreek-----	Fine-loamy, mixed, superactive, mesic Pachic Ultic Argixerolls
Tekison-----	Clayey-skeletal, smectitic, mesic Ultic Palexerolls
Thiessen-----	Clayey-skeletal, smectitic, mesic Pachic Argixerolls
Threecreeks-----	Coarse-loamy, mixed, superactive, mesic Cumulic Haploxerolls
Tigit-----	Fine-loamy, mixed, superactive, mesic Ultic Haploxeralfs
Timberhead-----	Ashy, amorphic, frigid Humic Vitrixerands
Trelk-----	Fine-loamy, isotic, mesic Andic Haploxeralfs
Tronsen-----	Clayey-skeletal, mixed, superactive, mesic Vitrandic Palexerolls
Trout-----	Ashy, amorphic, mesic Humic Vitrixerands
Troutlake-----	Ashy, amorphic, frigid Humic Vitrixerands

Table 10.--Taxonomic Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Umapine-----	Coarse-silty, mixed, superactive, calcareous, mesic Typic Halaquepts
Underwood-----	Fine-loamy, isotic, mesic Vitrandic Haploxeralfs
Van Nostern-----	Fine-silty, mixed, superactive, mesic Pachic Argixerolls
Volash-----	Ashy, amorphic, frigid Humic Vitrixerands
Wahoo-----	Loamy-skeletal, mixed, superactive, mesic Lithic Ultic Argixerolls
Walla Walla-----	Coarse-silty, mixed, superactive, mesic Typic Haploxerolls
Warden-----	Coarse-silty, mixed, superactive, mesic Xeric Haplocambids
Wato-----	Coarse-loamy, mixed, superactive, mesic Typic Haploxerolls
Weirman-----	Sandy-skeletal, mixed, mesic Torrifluventic Haploxerolls
Willis-----	Coarse-silty, mixed, superactive, mesic Haploduridic Durixerolls
Wind River-----	Coarse-loamy, mixed, superactive, mesic Typic Haploxerolls
Wipple-----	Clayey-skeletal, smectitic, mesic Aridic Palexerolls
Xerands-----	Xerands
Yedlick-----	Loamy-skeletal, isotic, mesic Andic Dystroxerepts

Accessibility Statement

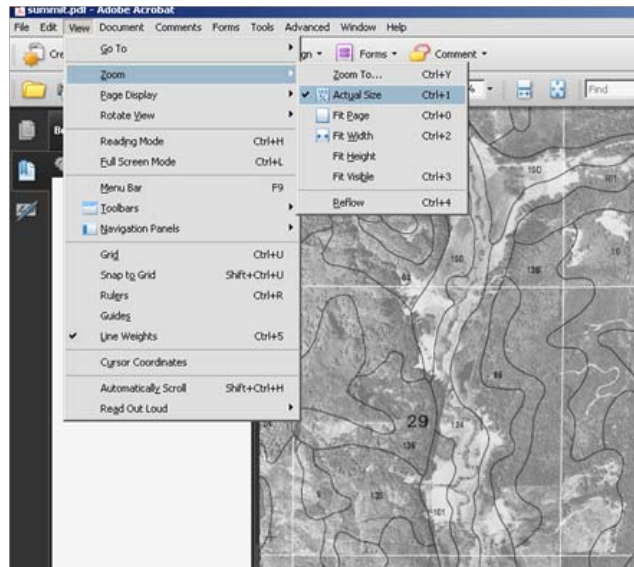
This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at <http://offices.sc.egov.usda.gov/locator/app>.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

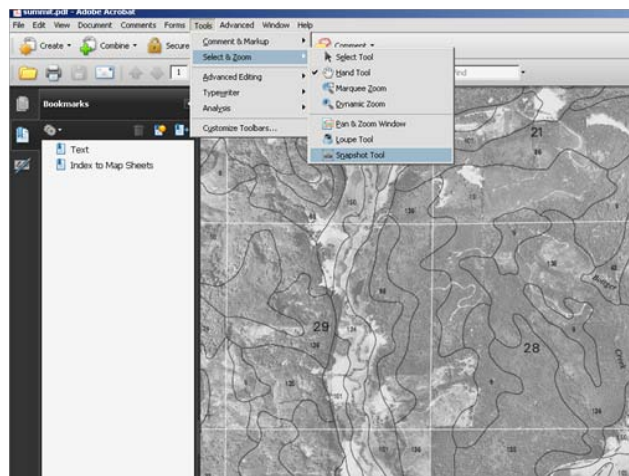
Printing Soil Survey Maps

The soil survey maps were developed at a scale of 1:24,000 and are intended to be used at that scale. Many common print options, such as “Shrink to Printable Area,” will distort the map scale on the printed page. To minimize this distortion, deselect these auto-format options before printing. (Note: The following instructions refer to Adobe Reader 9.2.0 Standard Edition.)

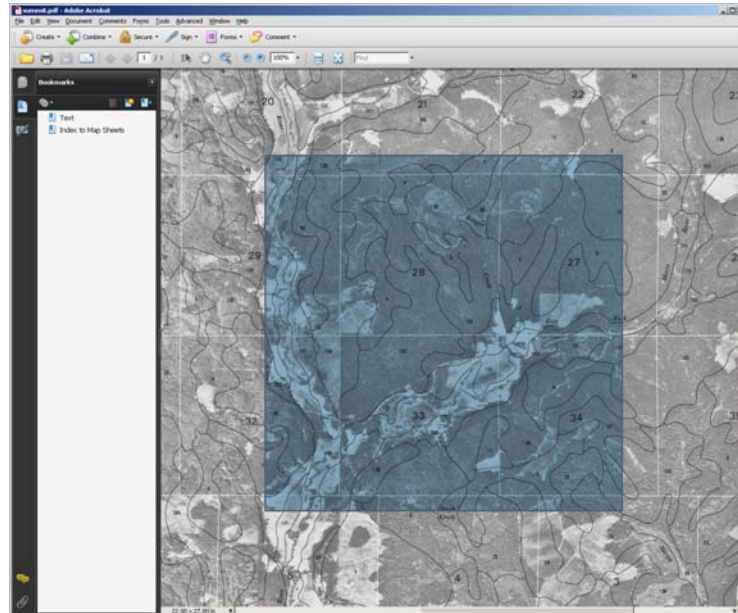
Set the view to Actual Size from the View pull-down menu.



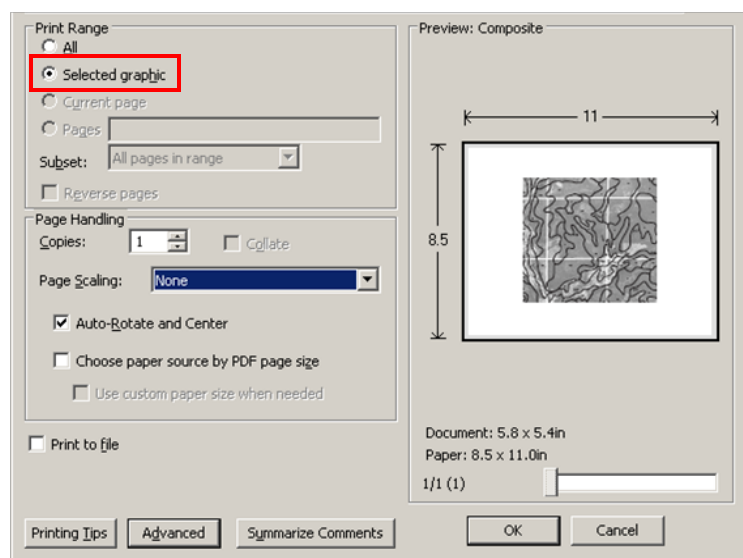
Using the Pan tool, navigate to the area you would like to print. Then select the Snapshot tool from the Tools menu.



Left-click and drag to create a box covering your area of interest.

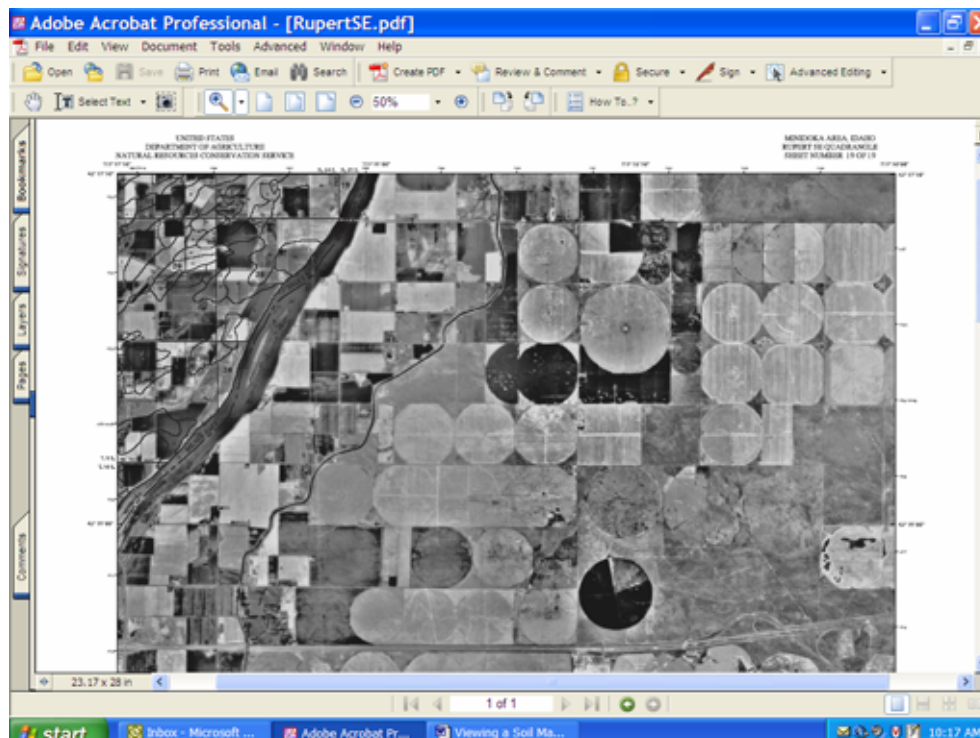
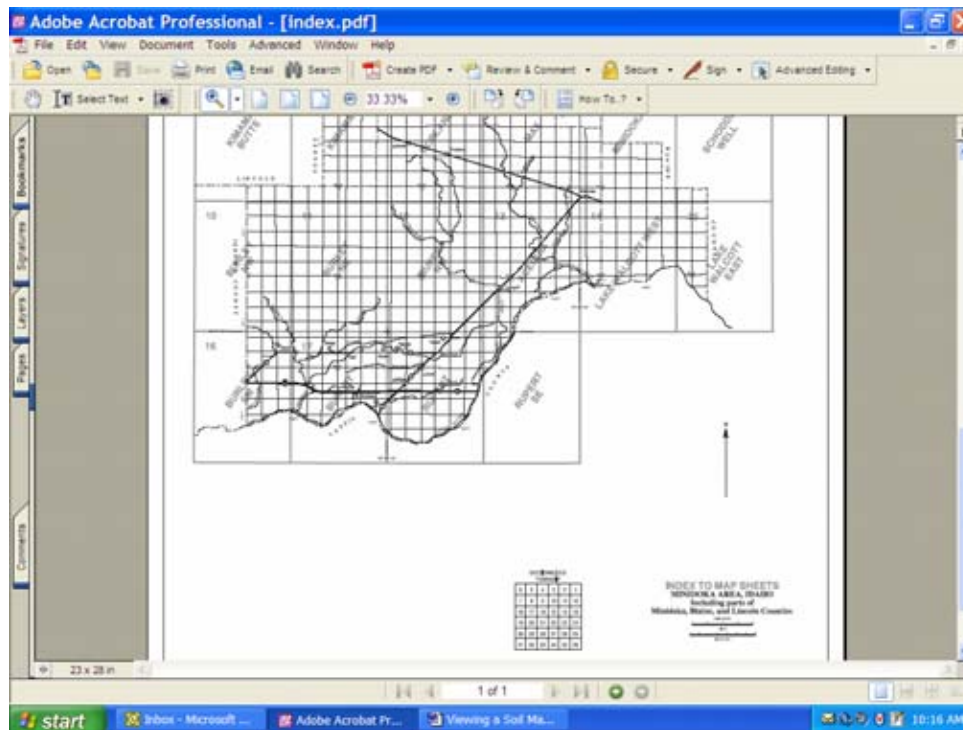


Verify that the Print Range is set to “Selected Graphic” and that Page Scaling is set to “None.” Click OK.

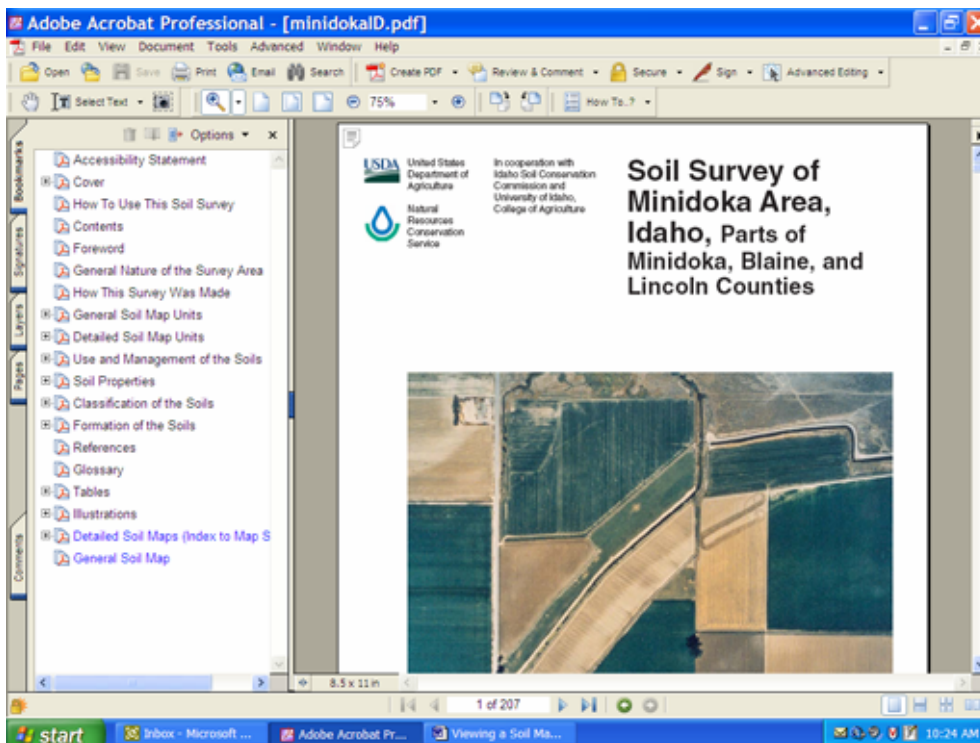
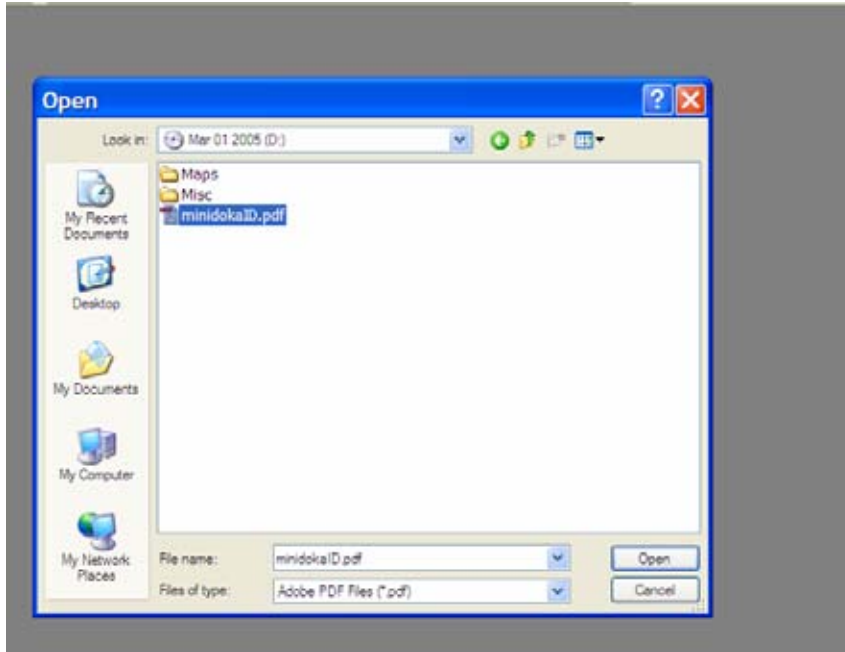


Viewing a Soil Map and Corresponding Map Unit Descriptions at the Same Time

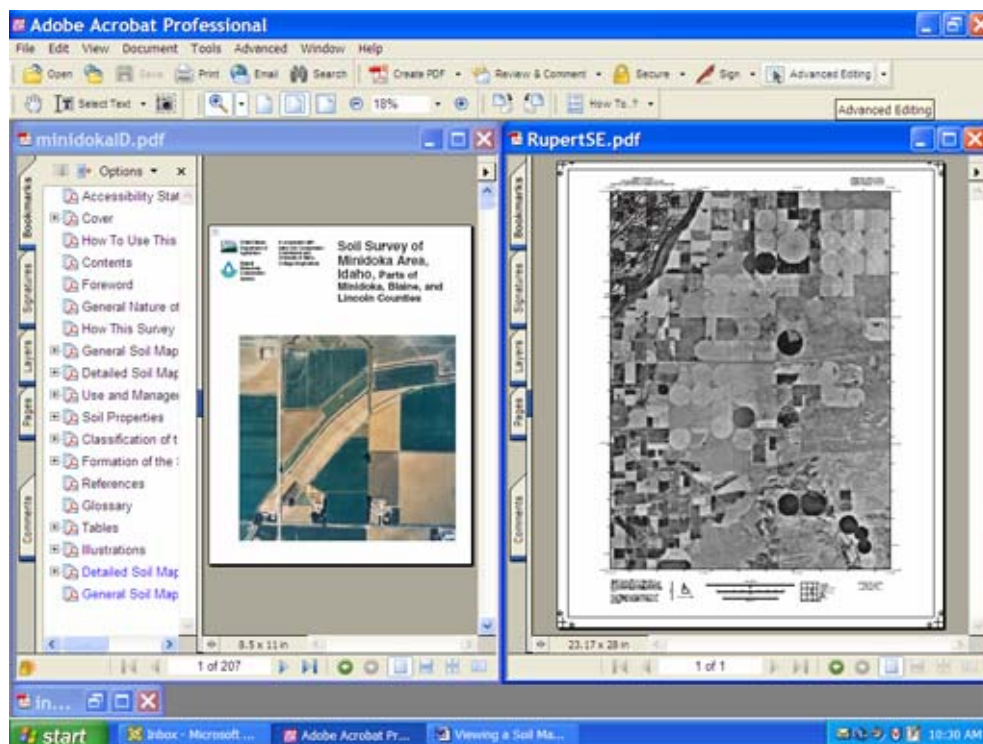
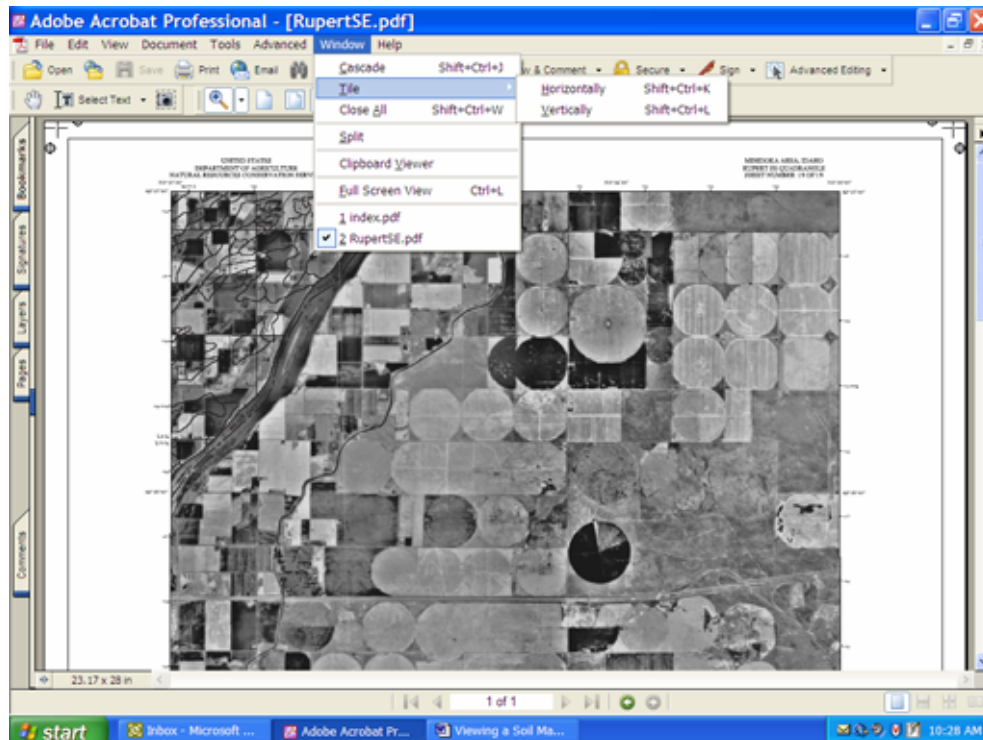
Open a soil map by clicking on a quadrangle on the Index to Map Sheets.



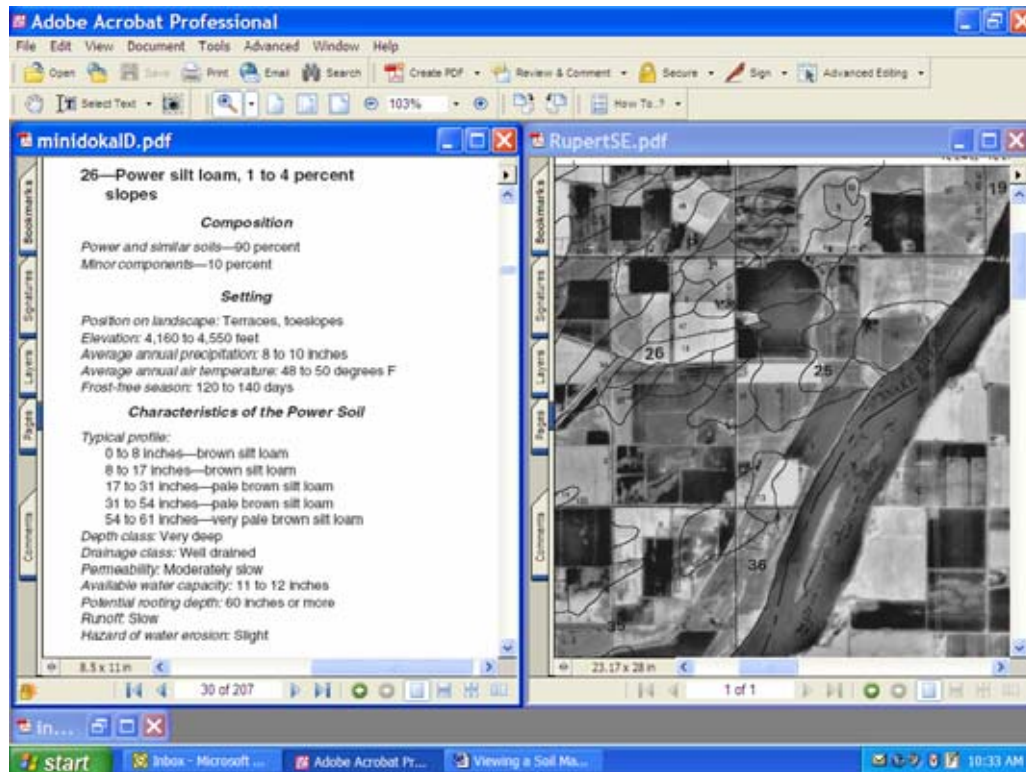
Open the manuscript pdf file.



Select Tile, Vertically or Horizontally from the Window menu to view both the manuscript and the soil map.



Pan or zoom to your area of interest in the soil map window. Select a map unit description from the bookmarks in the manuscript window.

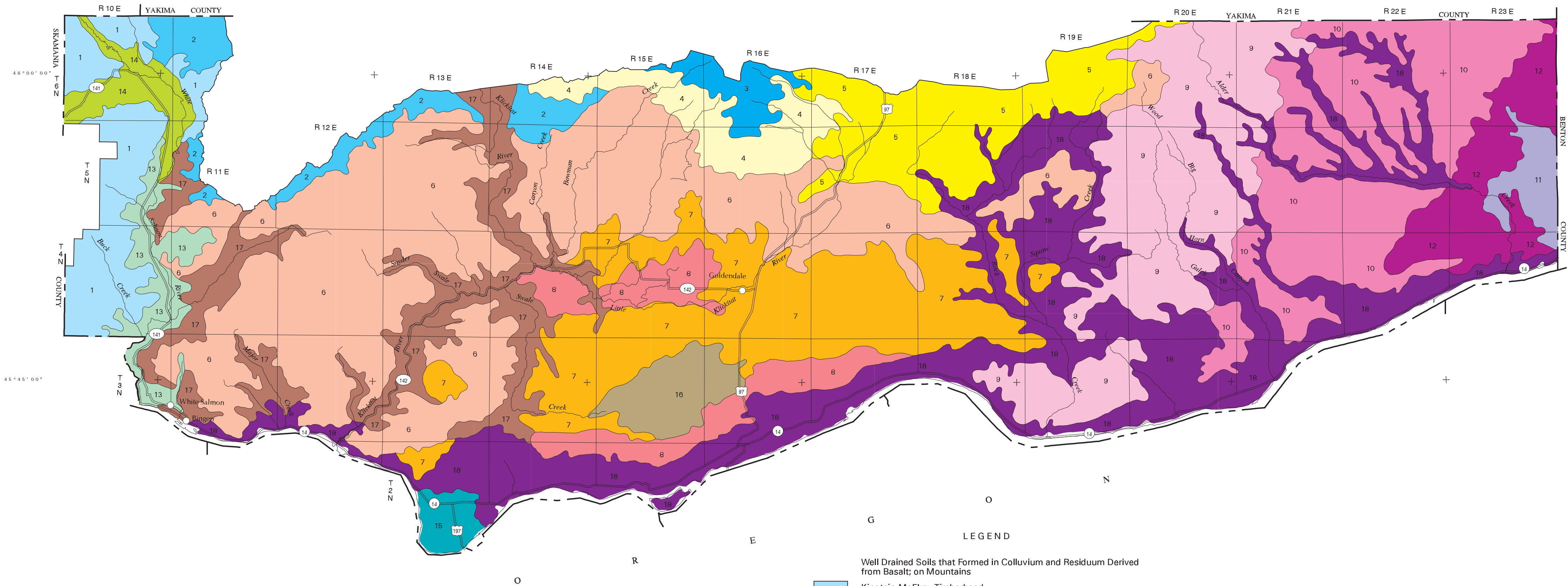


SECTIONALIZED TOWNSHIP					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36



121°30'00"

120°00'00"



LEGEND

- 1 Kingtain-McElroy-Timberhead
- 2 Firoke-Panak-Kaiders
- 3 Pird-Andic Haplocryalfs
- 4 Satus
- 5 Berson-Bocker-Klicko
- 6 Underwood-McGowan-Gunn
- 7 Goldendale-Lorena
- 8 Goldendale-Lorena (North)
- 9 Van Nostern-Morrow-Bakeoven
- 10 Mikkalo-Bakeoven
- 11 Somewhat Poorly Drained to Excessively Drained Soils that Formed in Alluvium, Mudflows, Volcanic Ash Deposits, Eolian and Lacustrine Deposits, and Loess; on Flood Plains and Terraces
- 12 Sagehill-Hezel-Quincy
- 13 Warden
- 14 Chemawa-Hood
- 15 Troutner-Volash-Flotag
- 16 Ewall-Dallesport-Rock outcrop
- 17 Swalecreek-Niva-Konner
- 18 Well Drained Soils that Formed in Colluvium and Residuum Derived from Basalt Mixed with Loess; on Canyons and Hills
- 19 Leidl-Jebe-Dillcourt
- 20 Cheviot-Horseflat-Rockly-Kiona

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
WASHINGTON STATE UNIVERSITY, AGRICULTURAL RESEARCH CENTER
GENERAL SOIL MAP
Klickitat County Area, Washington

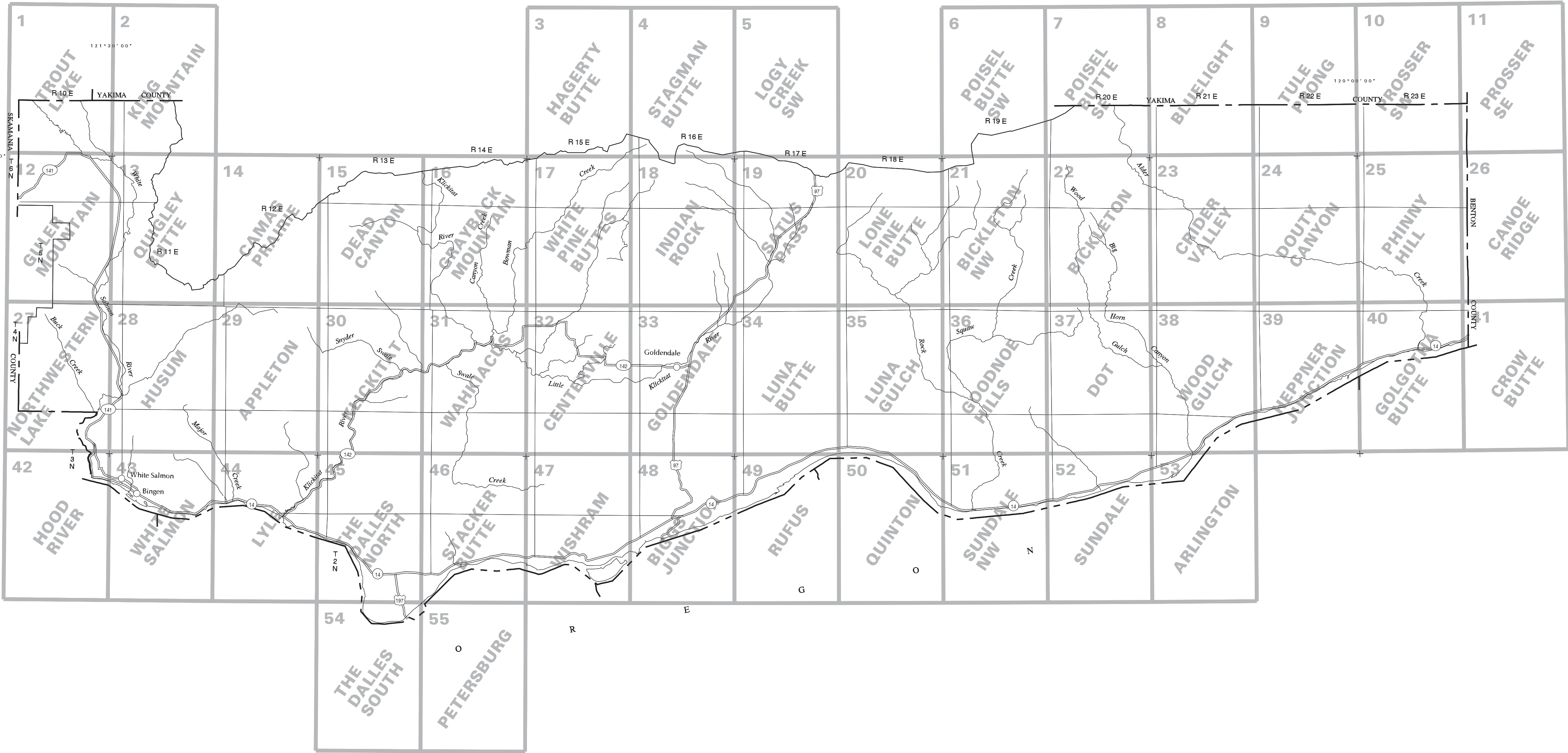
1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

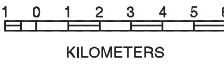
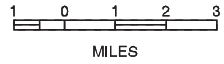
SCALE = 1:240000

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

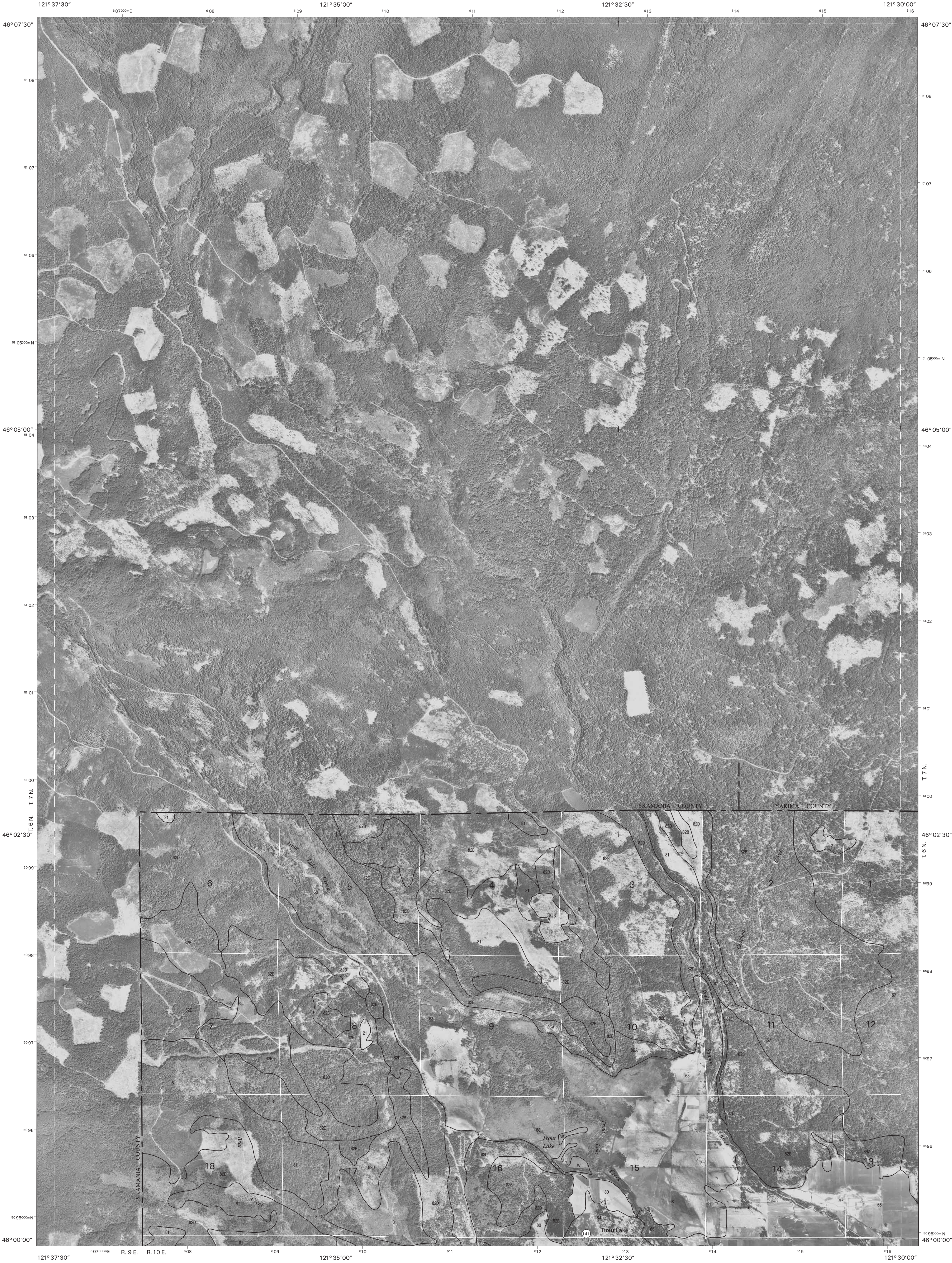
SECTIONALIZED TOWNSHIP											
6	5	4	3	2	1						
7	8	9	10	11	12						
18	17	16	15	14	13						
19	20	21	22	23	24						
30	29	28	27	26	25						
31	32	33	34	35	36						



INDEX TO MAP SHEETS
KLICKITAT COUNTY AREA, WASHINGTON

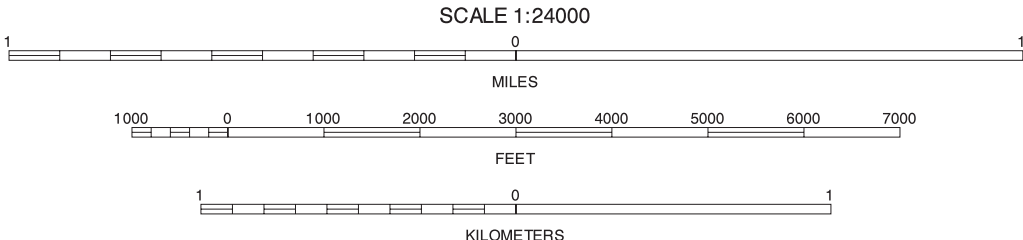


SCALE = 1:240000



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2	3
12	13	14

INDEX TO ADJOINING 7.5 MAPS

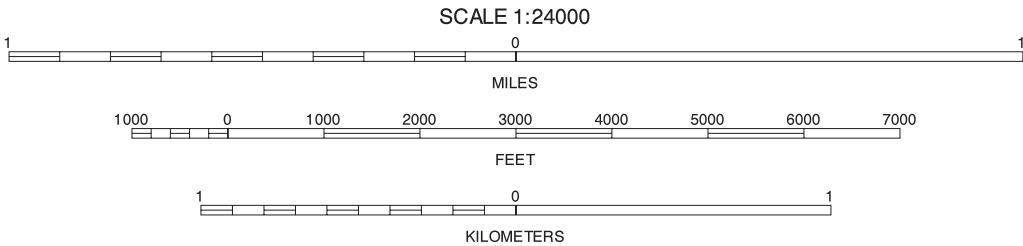
TROUT LAKE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



9	11
24	25
26	28

INDEX TO ADJOINING 7.5 MAPS

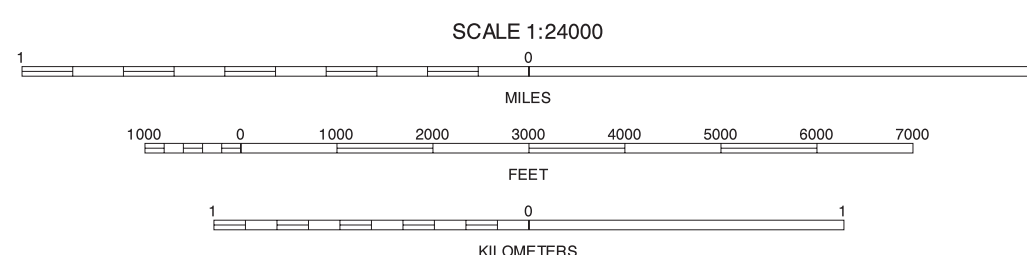
PROSSER SW, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.

KLICKITAT COUNTY AREA, WASHINGTON
PROSSER SE QUADRANGLE
SHEET NUMBER 11 OF 55



North American Datum of 1983(NAD83). GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are
approximately positioned. Digital data are available for
this quadrangle.



10 PROSSER SW
25 PHINNY HILL
26 CANOE RIDGE

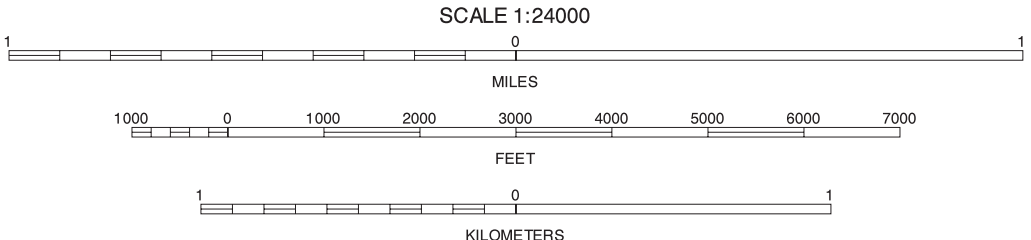
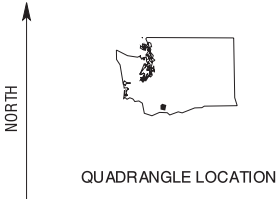
INDEX TO ADJOINING 7.5 MAPS

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2
13	
27	28

INDEX TO ADJOINING 7.5 MAPS

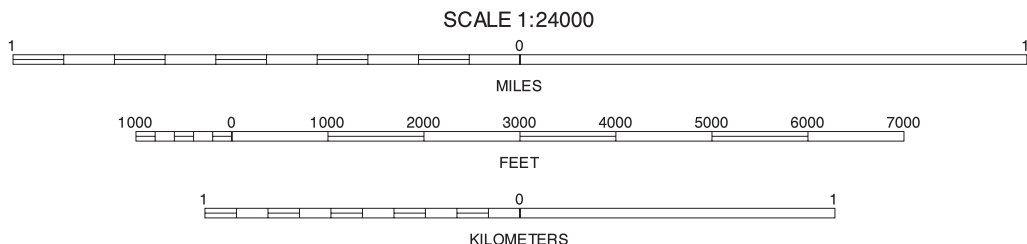
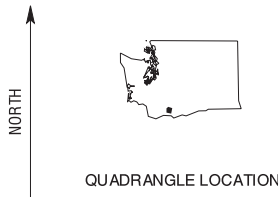
GULER MOUNTAIN, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 12 OF 55

Soil map delineations extending beyond the dashed white quadrangle headline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2		1
12		14	12
27	28	29	27

INDEX TO ADJOINING 7.5 MAPS

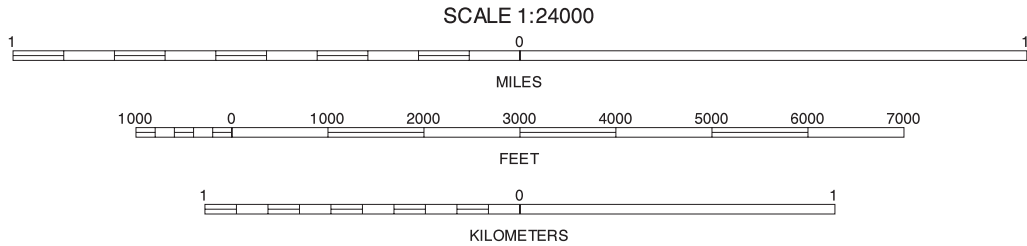
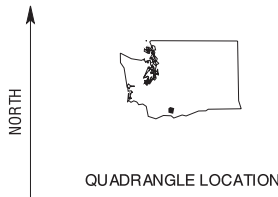
QUIGLEY BUTTE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



2		2	KING MOUNTAIN
13		15	QUIGLEY BUTTE
28	29	30	DEAD CANYON
			HULUM
			APPLETON
			Klickitat

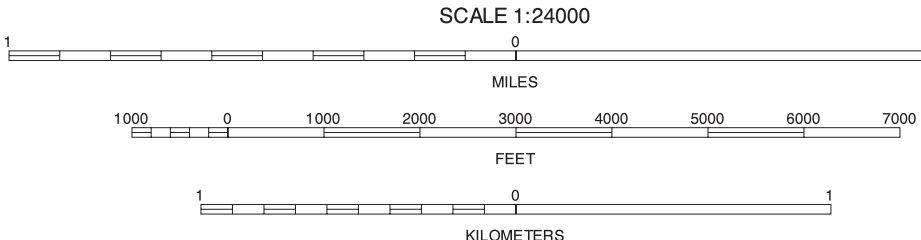
CAMAS PRAIRIE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



14	16
29	31

INDEX TO ADJOINING 7.5 MAPS

DEAD CANYON, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 15 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.



Joins sheet 15 Dead Canyon

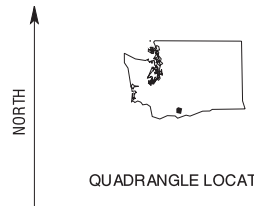
Joins sheet 17 White Pine Buttes

Joins sheet 20
Klickitat

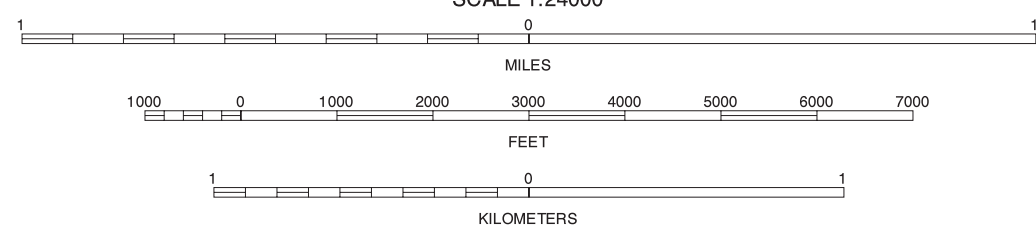
Joins sheet 32
Centerline

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



		3
15		17
30	31	32

INDEX TO ADJOINING 7.5 MAPS

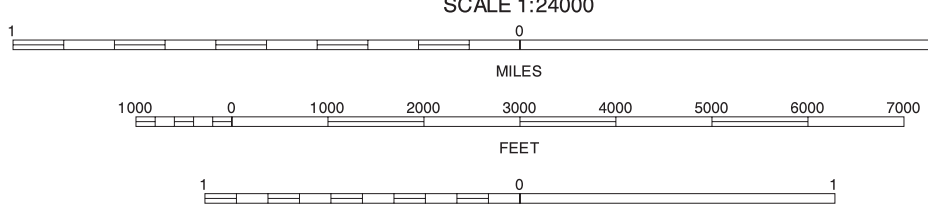
GRAYBACK MOUNTAIN, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 16 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



	3	4
16		18
31	32	33

INDEX TO ADJOINING 7.5 MAPS

3 HAGERTY BUTTE
4 STAGMAN BUTTE
16 GRAYBACK MOUNTAIN
18 INDIAN ROCK
31 WAKIACUS
32 CENTERVILLE
33 GOLDENDALE

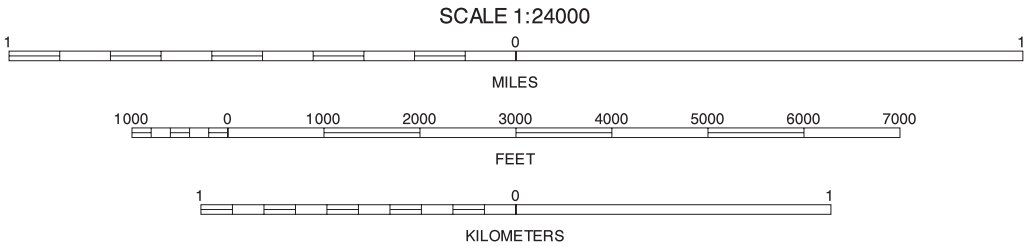
WHITE PINE BUTTES, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



3	4	5
17	18	19
32	33	34

INDEX TO ADJOINING 7.5 MAPS

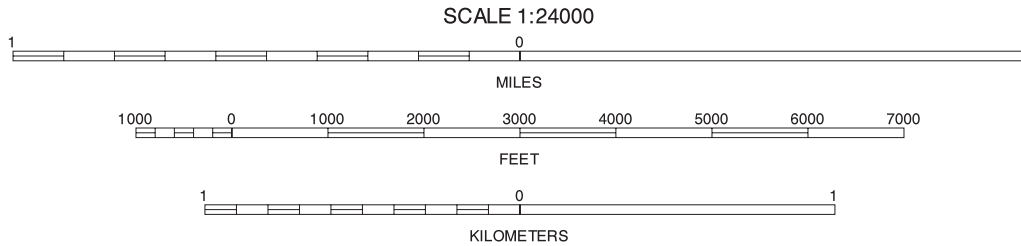
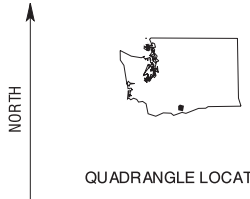
INDIAN ROCK, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 18 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



4	5	
18		20
33	34	35

INDEX TO ADJOINING 7.5 MAPS

SATUS PASS, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 19 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.

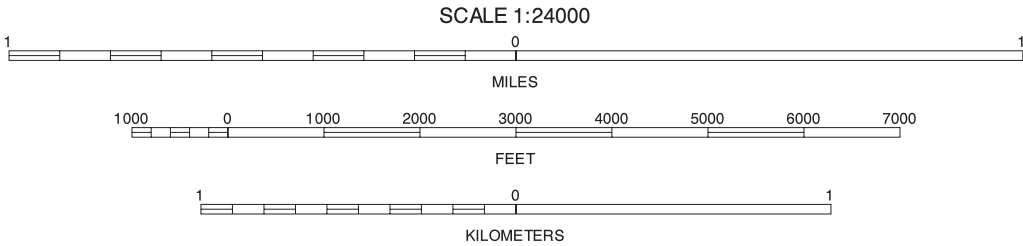


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

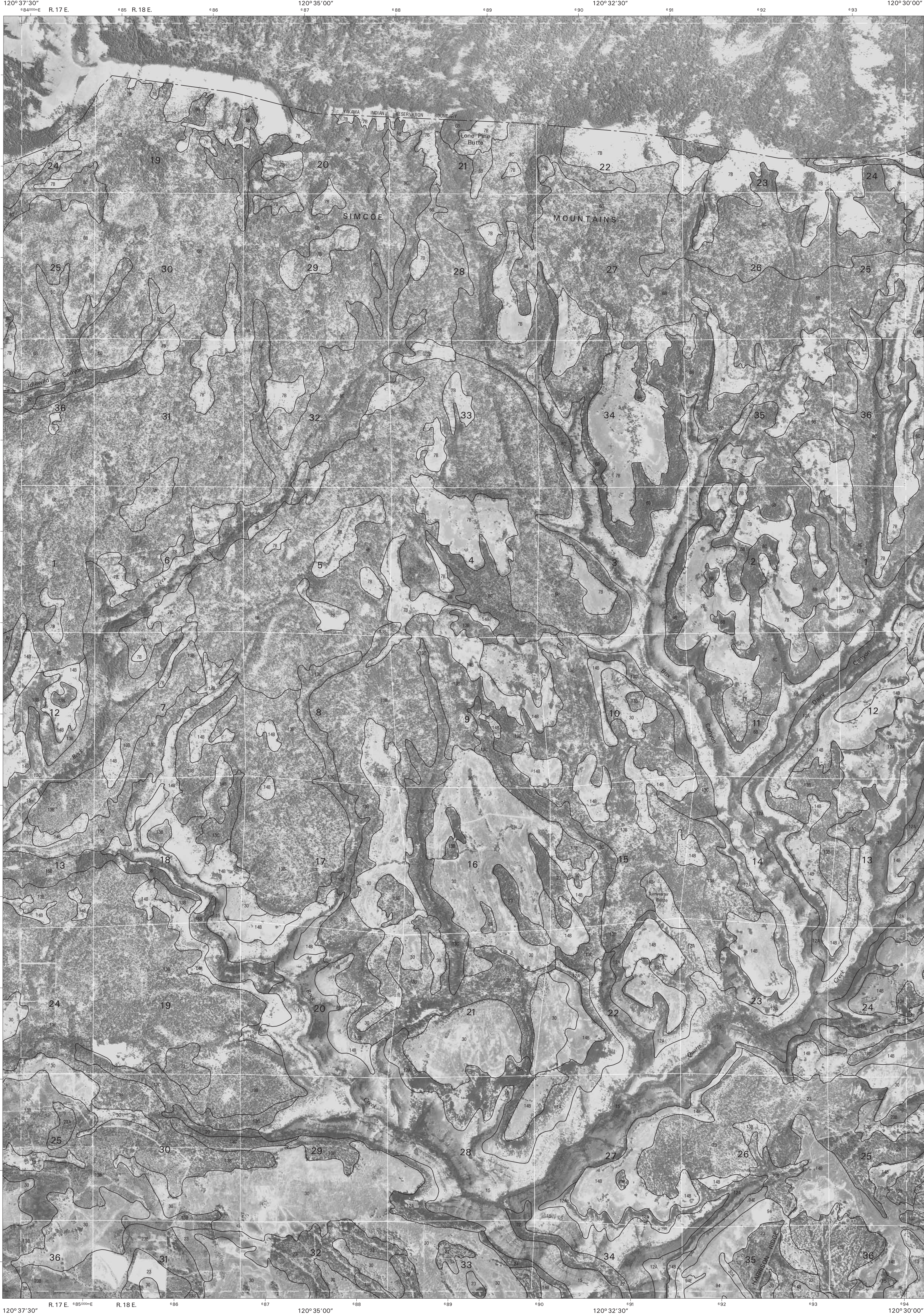


1			1 TROUT LAKE
12	13	14	12 GULIER MOUNTAIN 13 QUIGLEY BUTTE 14 CAMAS PRAIRIE

INDEX TO ADJOINING 7.5 MAPS

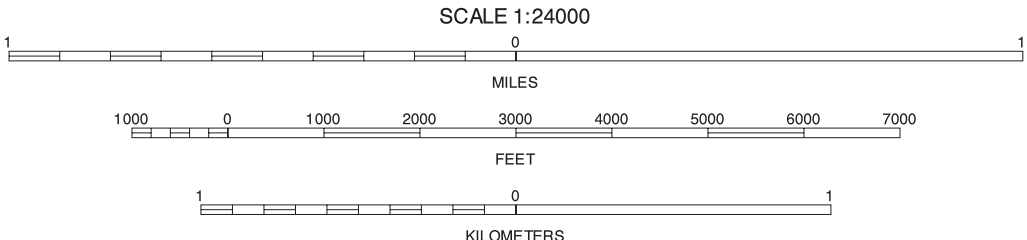
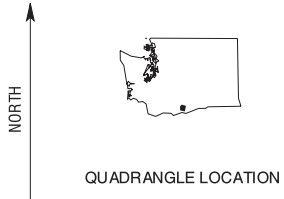
KING MOUNTAIN, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



5	6	5	LOGY CREEK SW
19	21	6	POISEL BUTTE SW
34	35	19	SATUS PASS
		21	BICKLETON NW
		34	LUNA BUTTE
		35	LUNA GULCH
		36	GOODNOE HILLS

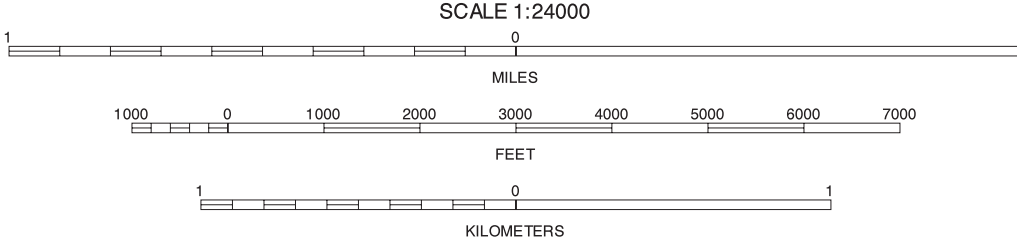
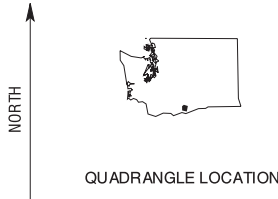
LONE PINE BUTTE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 20 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks; Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



	6	7
20		22
35	36	37

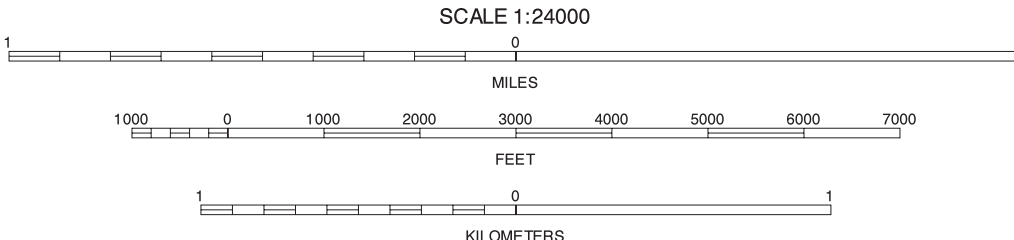
BICKLETON NW, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 21 OF 55

Soil map delineations extending beyond the dashed white quadrangle headline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



6	7	8
21		23
36	37	38

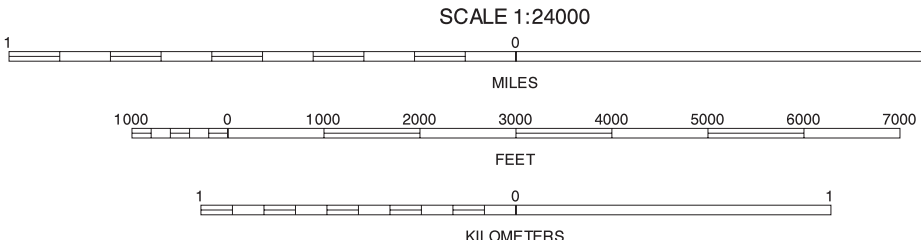
BICKLETON, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 22 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

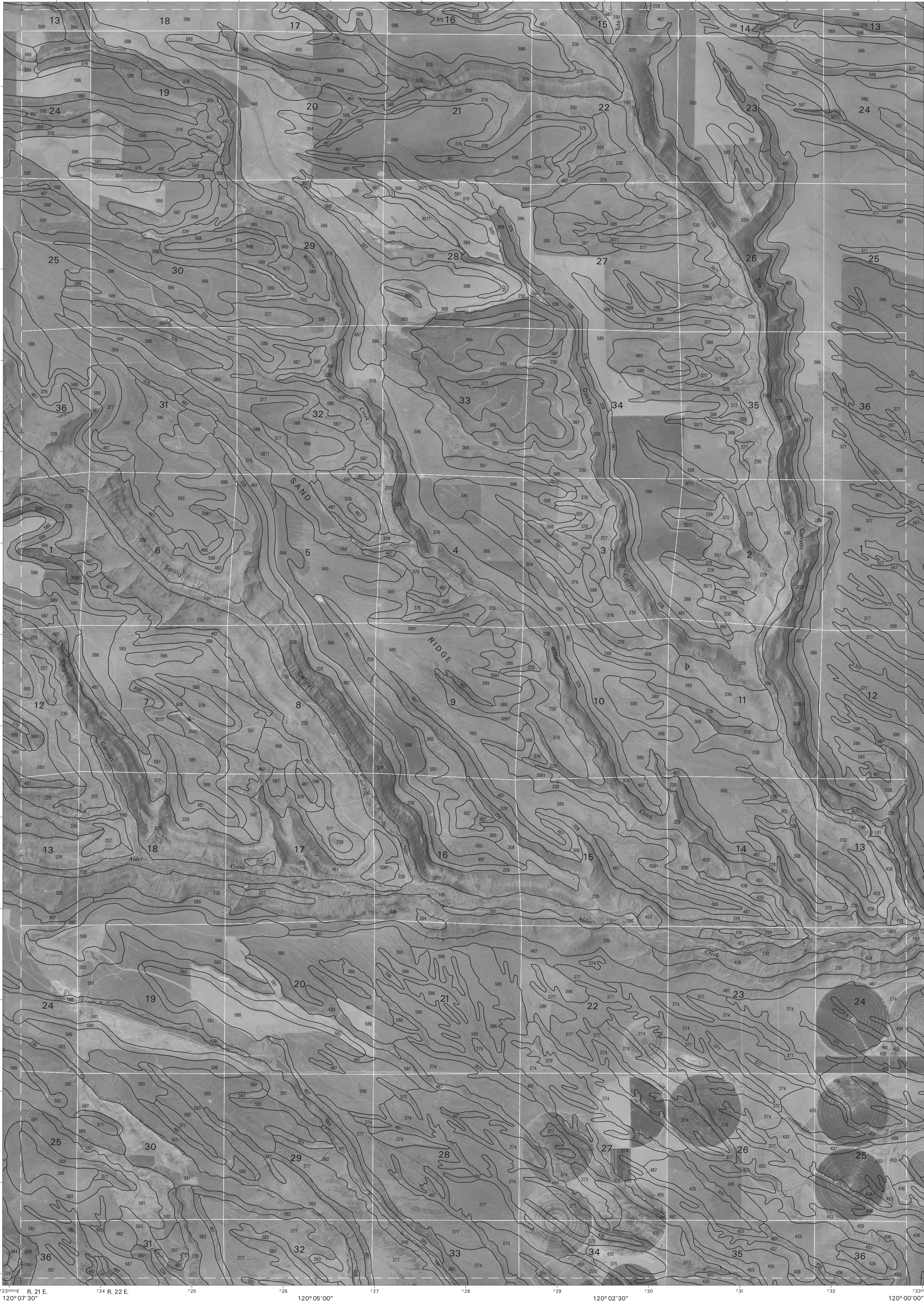


7	8	9	7 POISEL BUTTE SE
			8 BLUELIGHT
			9 TULE PRONG
22		24	22 BICKLETON
			24 DOUTY CANYON
			37 DOT
37	38	39	38 WOOD GULCH
			39 HEPPNER JUNCTION

INDEX TO ADJOINING 7.5 MAPS

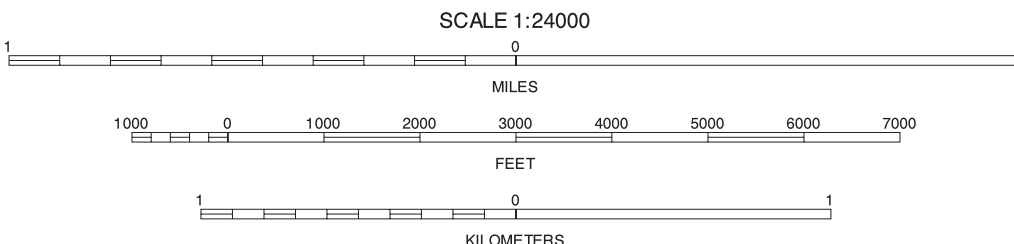
CRIDER VALLEY, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 23 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealtine are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



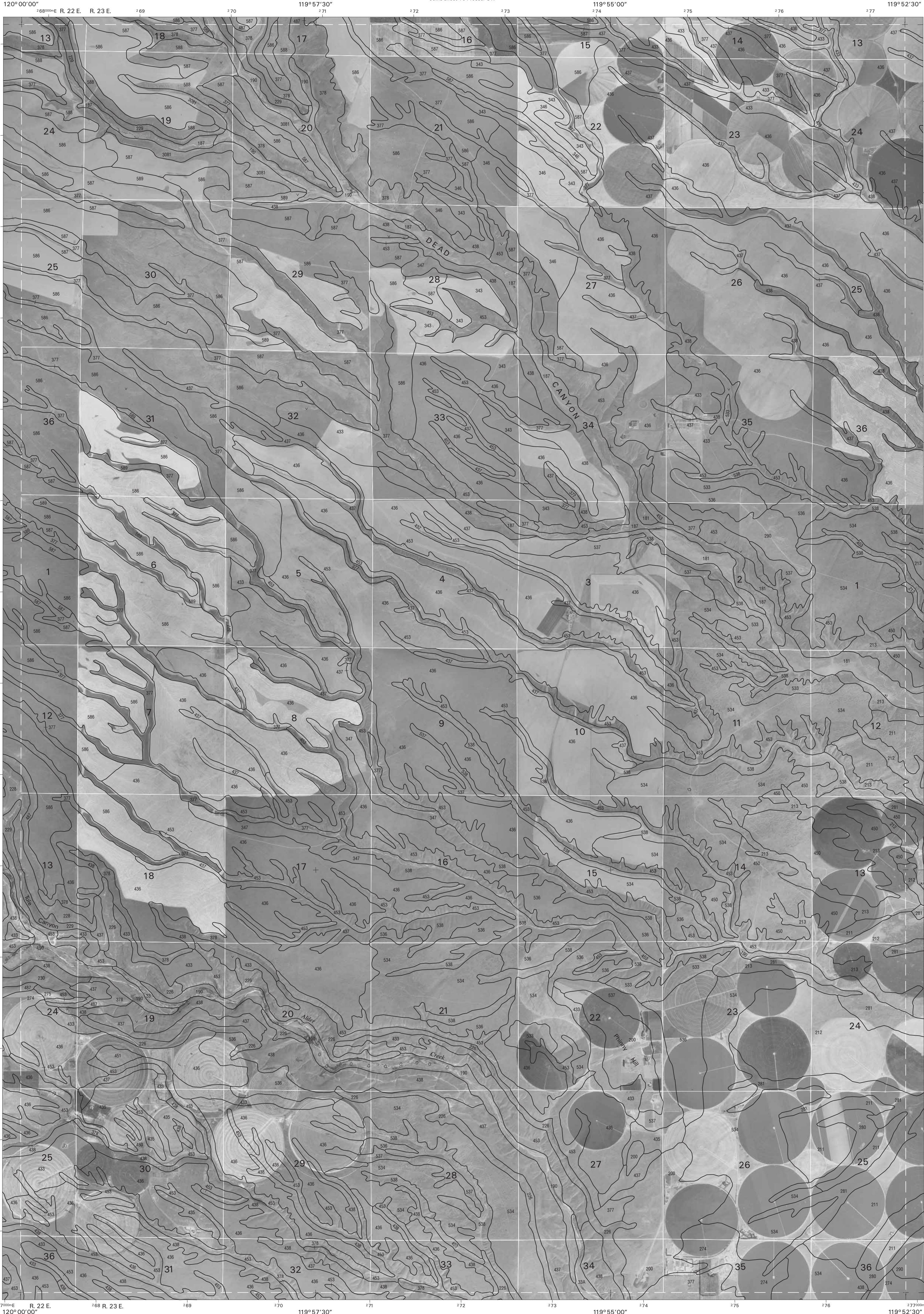
8	9	10
23	24	25
38	39	40

DOUTY CANYON, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 24 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatine are for reference only and are included on adjacent map sheets.

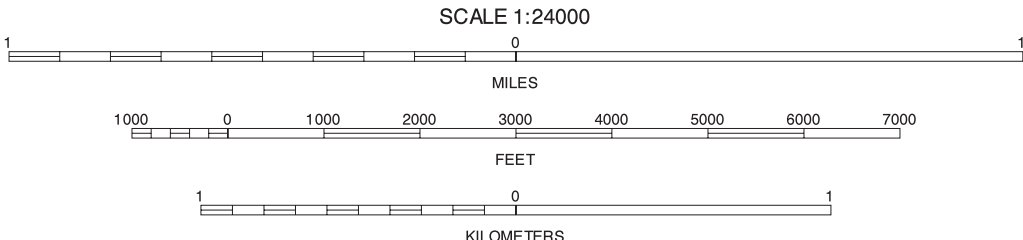
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

KLICKITAT COUNTY AREA, WASHINGTON
PHINNY HILL QUADRANGLE
SHEET NUMBER 25 OF 55



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

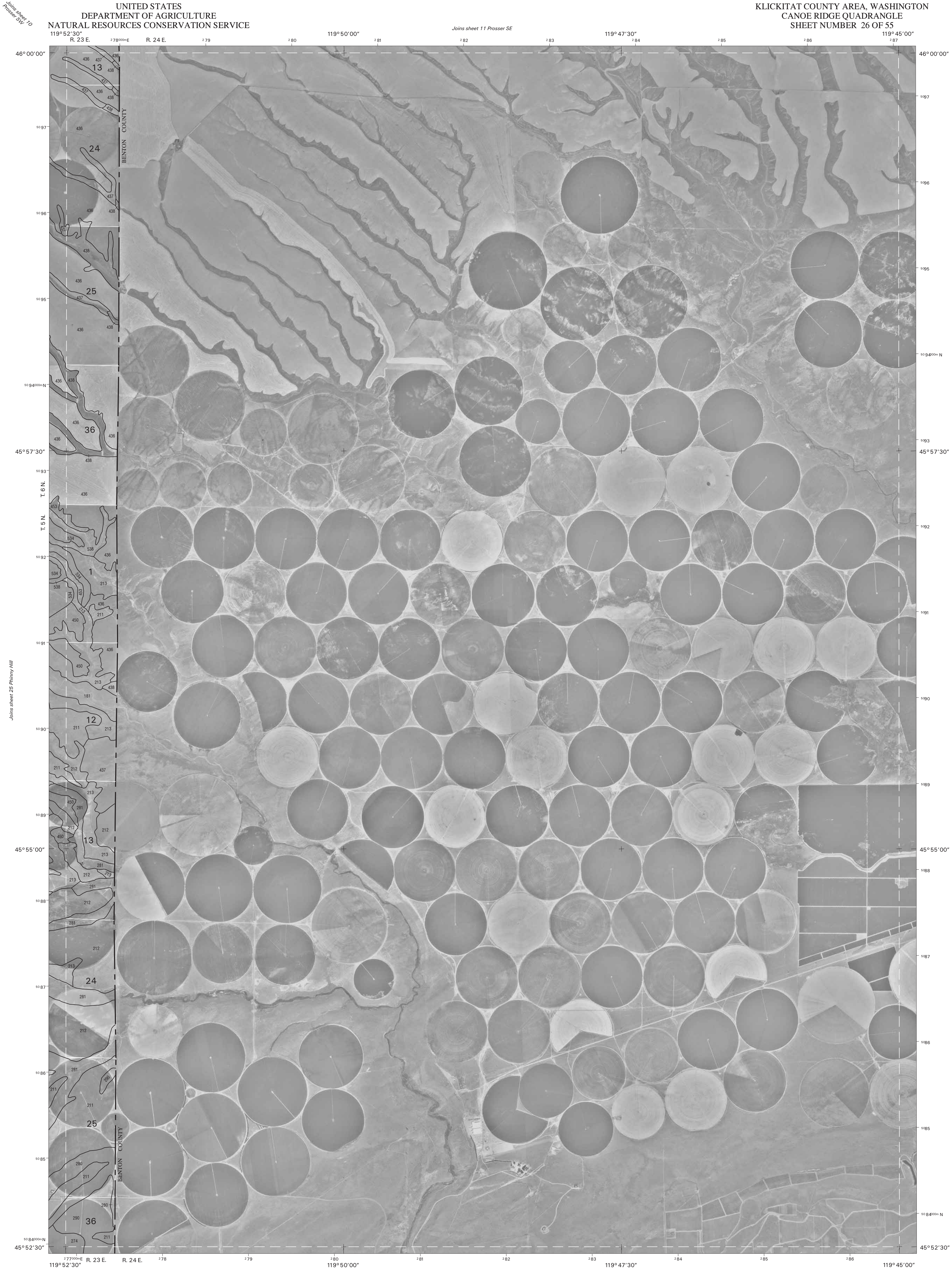
North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



9	10	11
24		26
39	40	41

PHINNY HILL, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 25 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



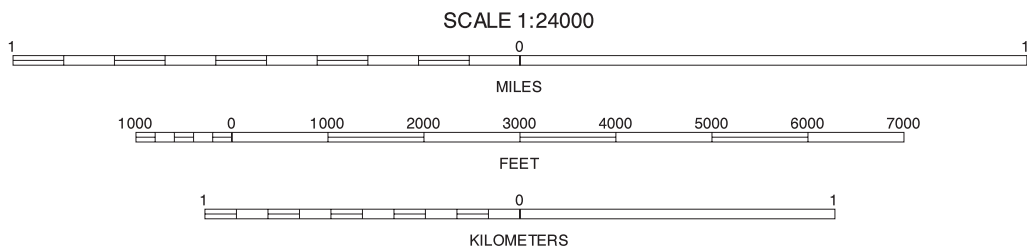
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



10	11	10 PROSSER SW 11 PROSSER SE
25	26	25 PHINNY HILL
40	41	40 GOLGOTHA BUTTE 41 CROW BUTTE

INDEX TO ADJOINING 7.5 MAPS

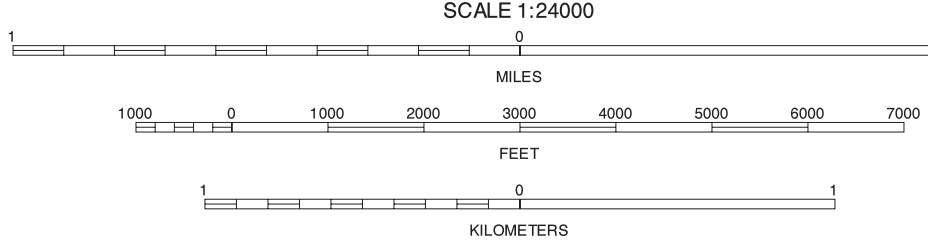
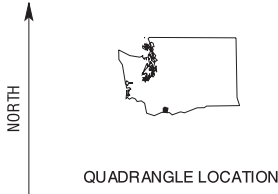
CANOE RIDGE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 26 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

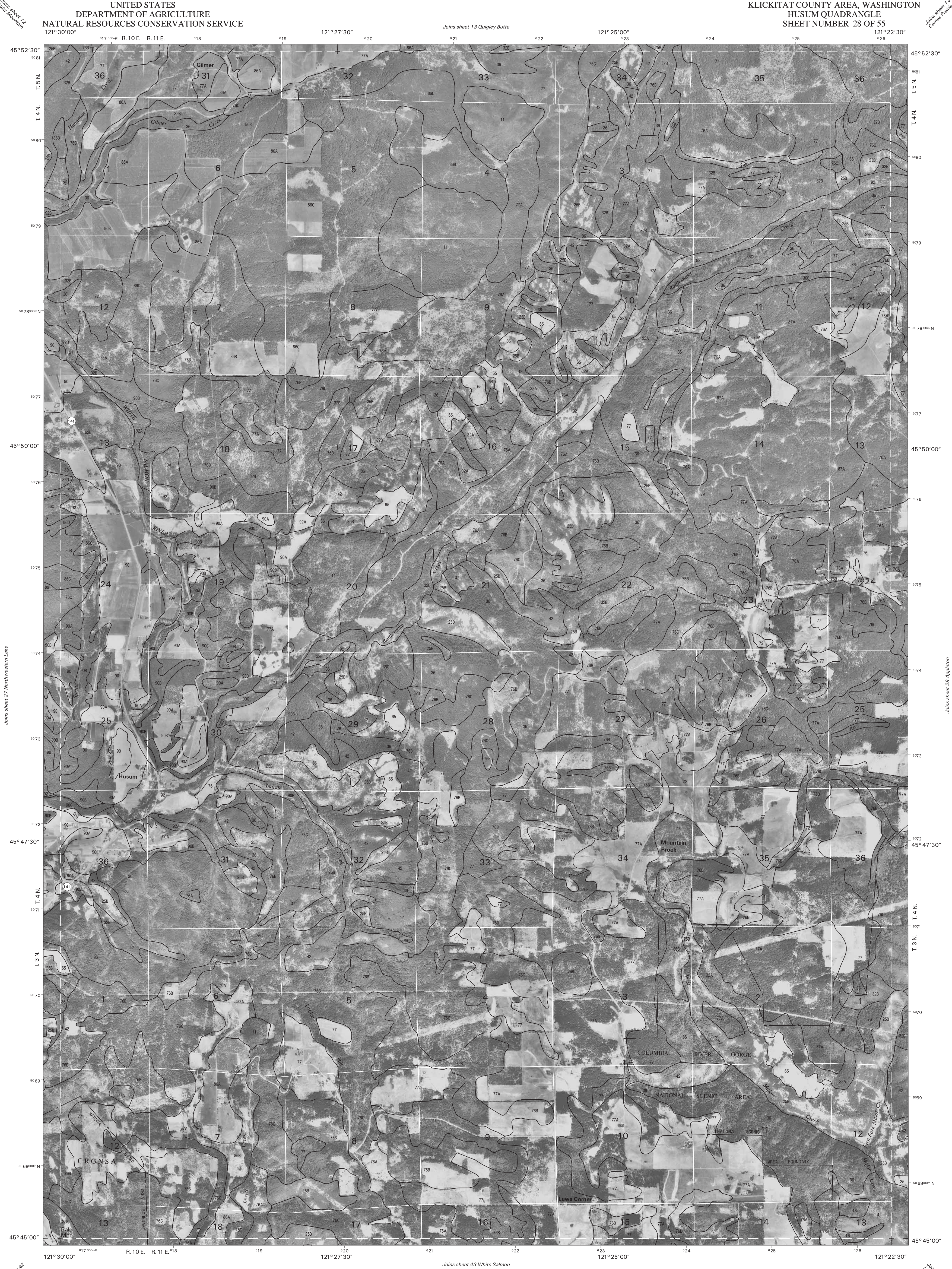
North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



12	13	12 GULER MOUNTAIN
28	28	13 OUGLEY BUTTE
42	43	28 HUSUM
		42 HOOD RIVER
		43 WHITE SALMON

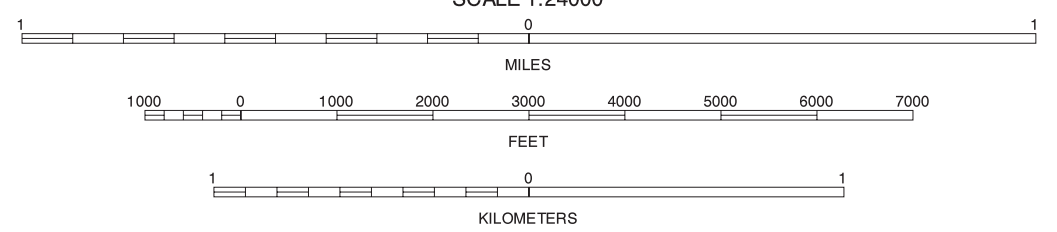
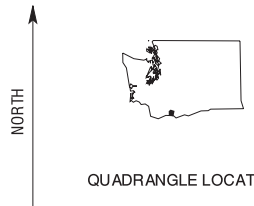
NORTHWESTERN LAKE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 27 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



12	13	14
27	28	29
42	43	44

INDEX TO ADJOINING 7.5 MAPS

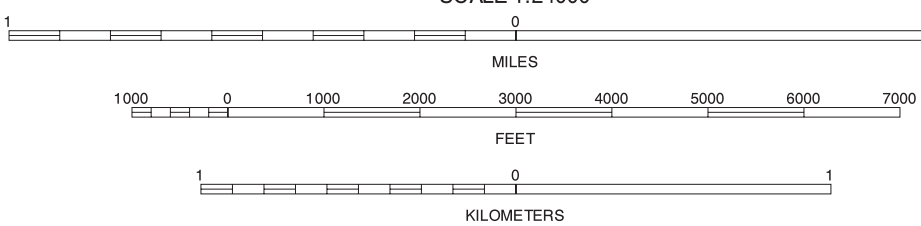
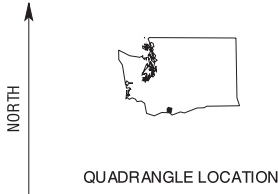
HUSUM, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 28 OF 55

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



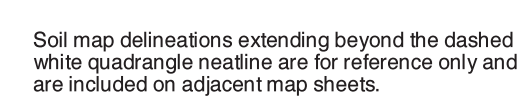
13	14	15
28	30	
43	44	45

INDEX TO ADJOINING 7.5 MAPS

APPLETON, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 29 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.

KLICKITAT COUNTY AREA, WASHINGTON
HAGERTY BUTTE QUADRANGLE
SHEET NUMBER 3 OF 55

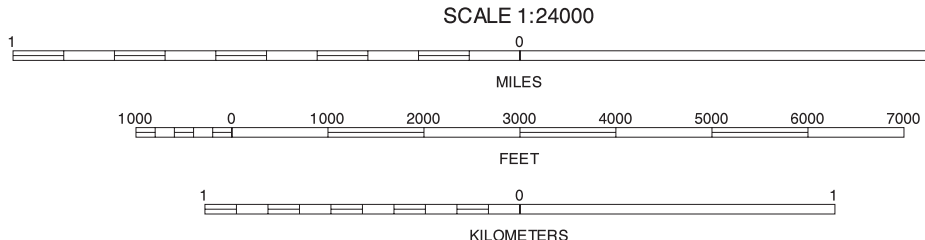
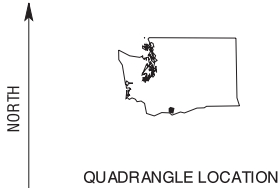


Joins sheet 4 Stagman Butte



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



14	15	16
29	30	31
44	45	46

INDEX TO ADJOINING 7.5 MAPS

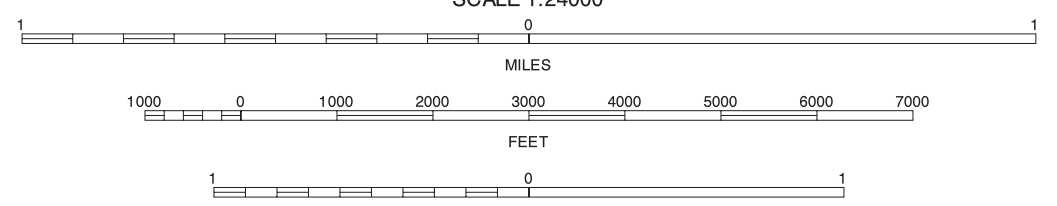
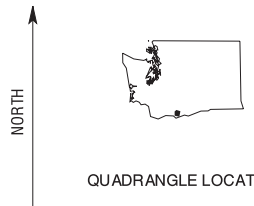
KLICKITAT, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 30 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



15	16	17
30	31	32
45	46	47

WAHKIACUS, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 31 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

Joins sheet 15
Dead Canyon

Joins sheet 16 Grayback Mountain

Joins sheet 17
White Pine Buttes

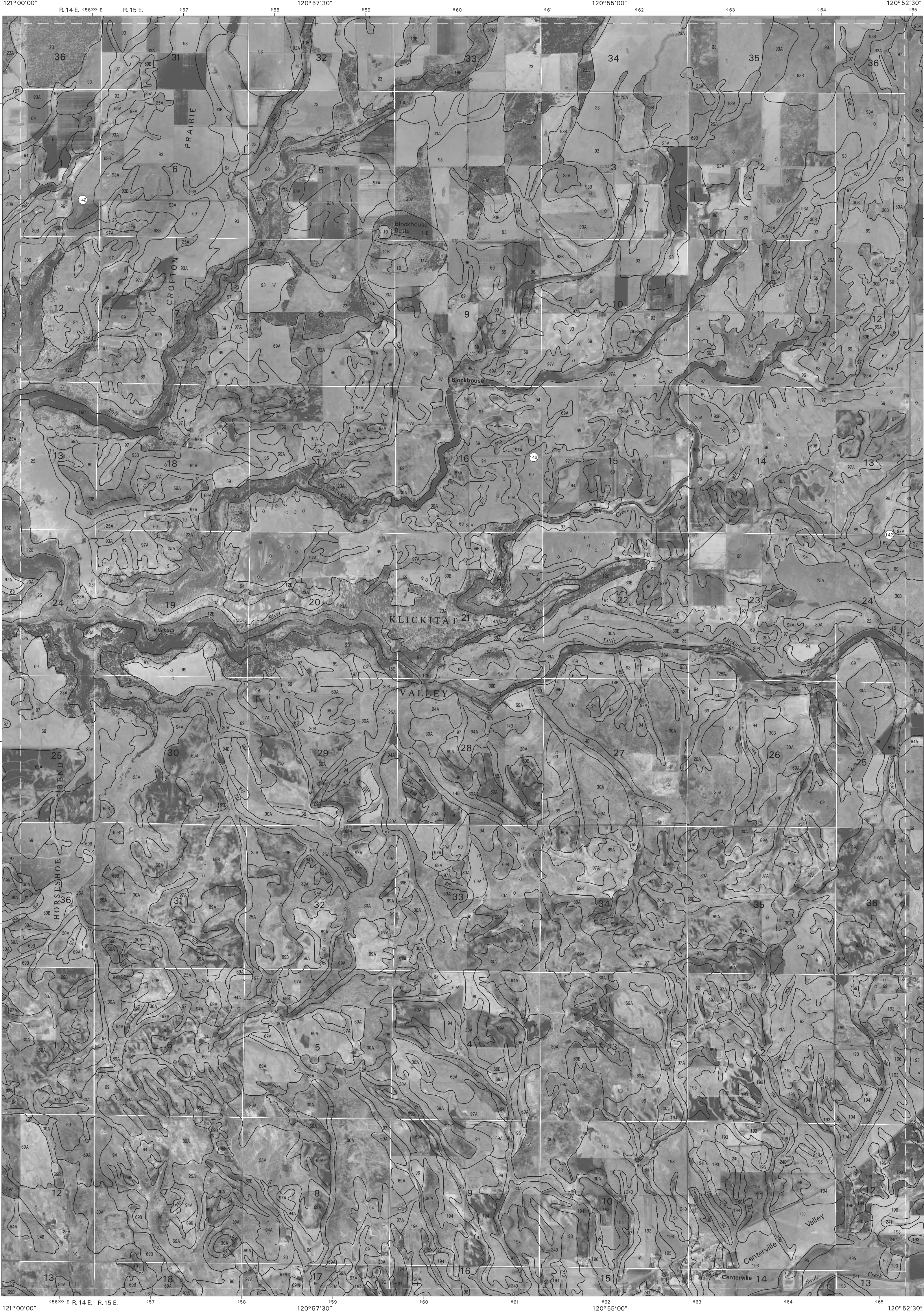
Joins sheet 30 Klickitat

Joins sheet 32 Conterville

Joins sheet 45
The Dalles North

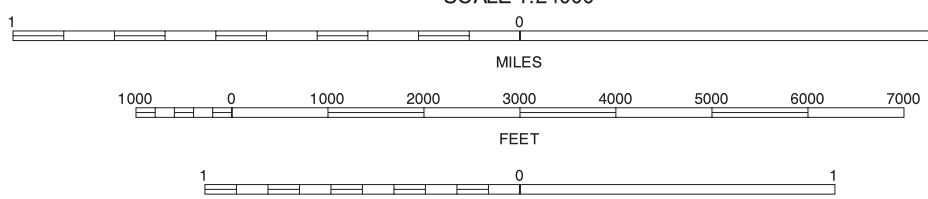
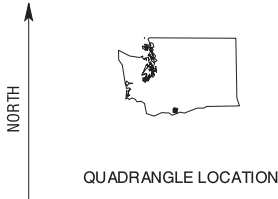
Joins sheet 46 Stacker Butte

Joins sheet 47
Wishram



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

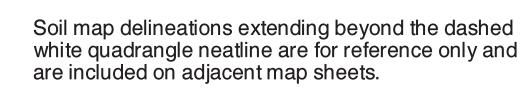


16	17	18	19
31	32	33	34
46	47	48	49

CENTERVILLE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 32 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

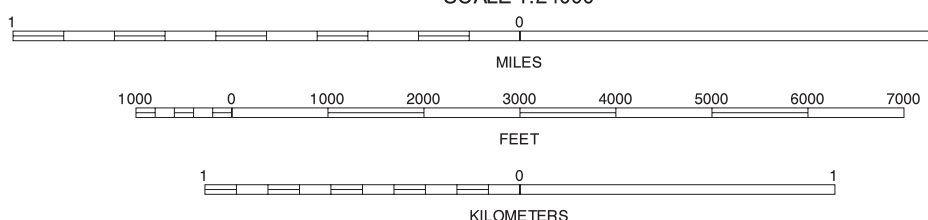
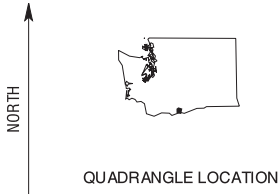
INDEX TO ADJOINING 7.5 MAPS





This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



18	19	20	18 INDIAN ROCK
33	34	35	19 SATIS PASS
48	49	50	20 LONE PINE BUTTE
			33 GOLDENDALE
			35 LUNA GULCH
			48 BIGGS JUNCTION
			49 RUFUS
			50 QUINTON

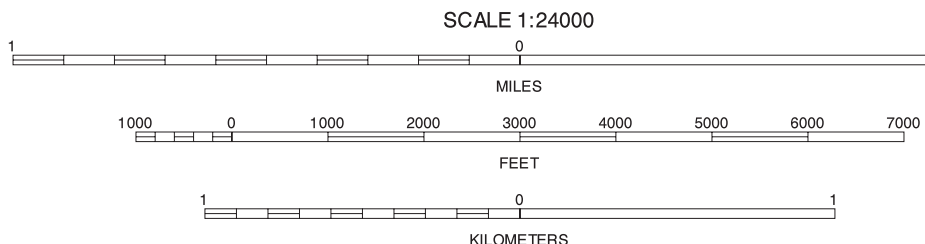
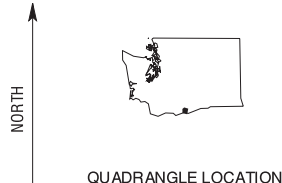
LUNA BUTTE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 34 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



19	20	21
34	35	36
49	50	51

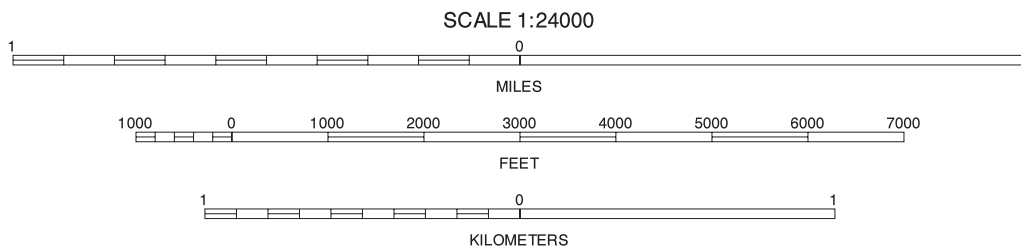
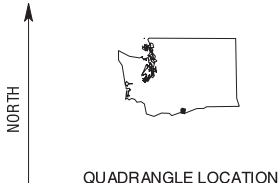
LUNA GULCH, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 35 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

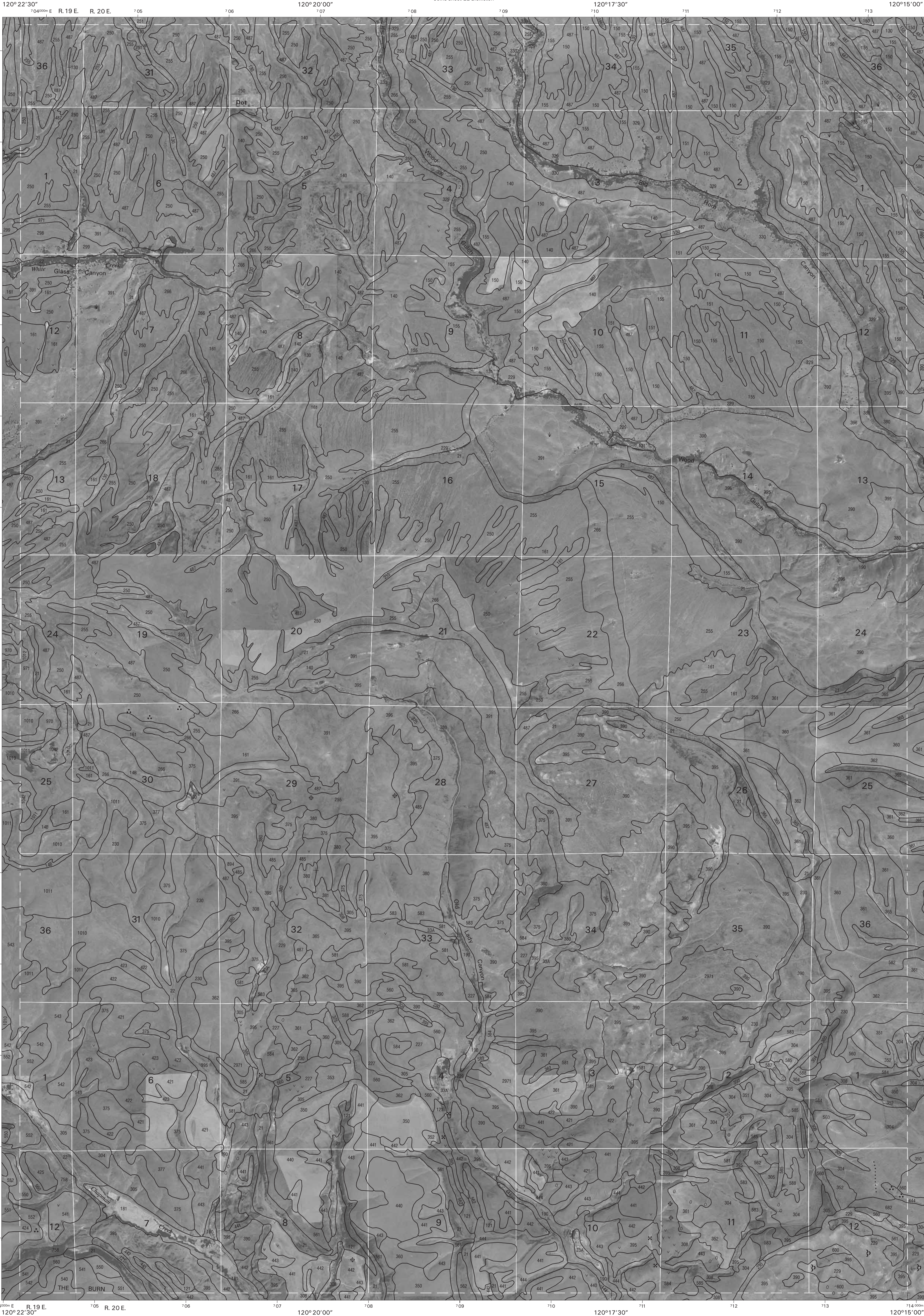


20	21	22
35	36	37
50	51	52

20	21	22
35	36	37
50	51	52

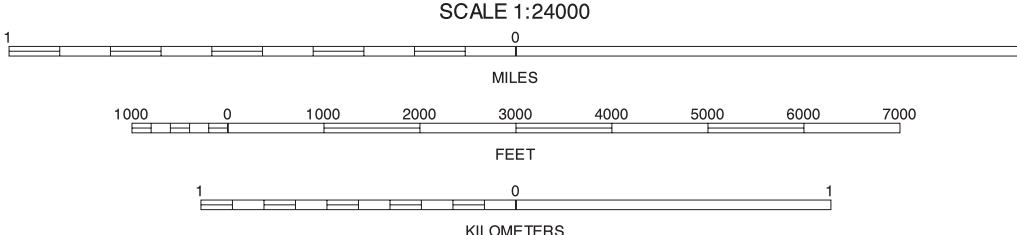
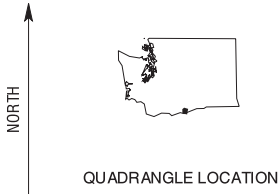
GOODNOE HILLS, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 36 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



21	22	23
36	37	38
51	52	53

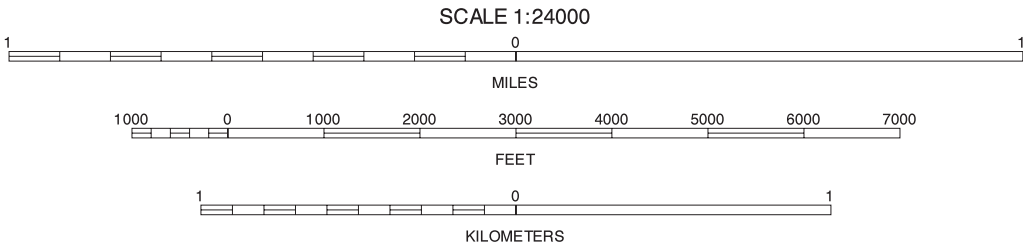
DOT, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 37 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



22	23	24
37	38	39
52	53	54

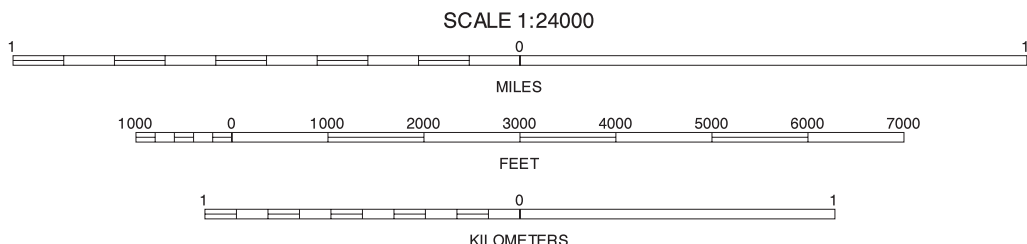
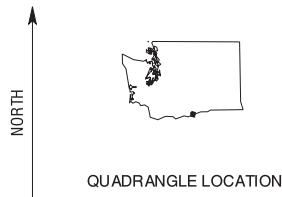
WOOD GULCH, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 38 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealtine are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



23	24	25	23 ORDER VALLEY
38	40	40	24 DOUTY CANYON
53			25 PHINNY HILL
			38 WOOD GULCH
			40 GOLGOTHA BUTTE
			53 ARLINGTON

HEPPNER JUNCTION, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 39 OF 55

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



Joins sheet 3 Hagerty Butte

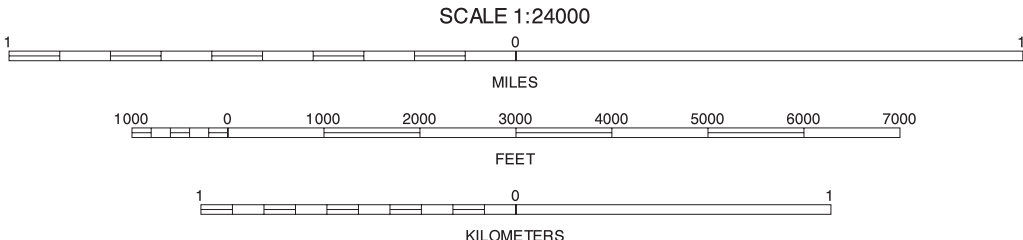
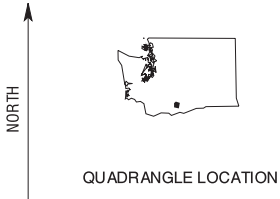
Joins sheet 5 Logy Creek SW

Joins sheet 17
White Pine Buttes

Joins sheet 19
Satus Pass

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

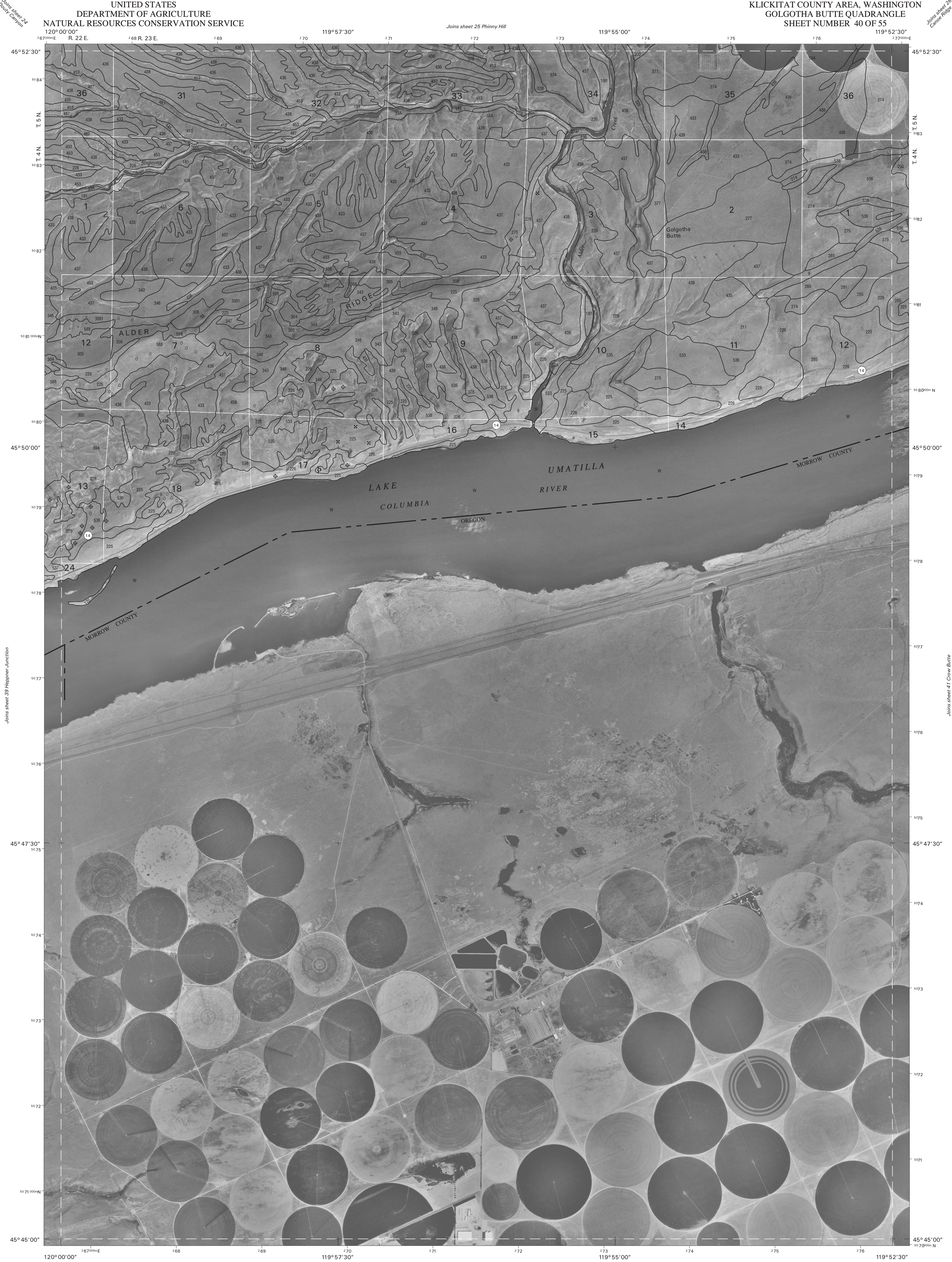


3	5	3	HAGERTY BUTTE
17	18	19	5 LOGY CREEK SW
			17 WHITE PINE BUTTES
			18 INDIAN ROCK
			19 SATUS PASS

INDEX TO ADJOINING 7.5 MAPS

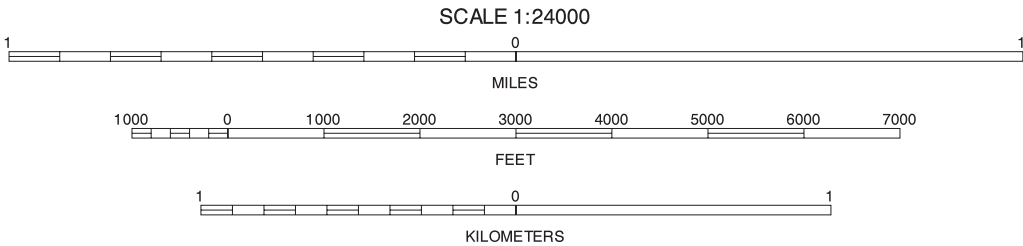
STAGMAN BUTTE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 55

Soil map delineations extending beyond the dashed white quadrangle headline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



24	25	26
39	40	41

24 DOUTY CANYON
25 PHINNY HILL
26 CANOE RIDGE
39 HEPNER JUNCTION
41 CROW BUTTE

INDEX TO ADJOINING 7.5 MAPS

GOLGOTHA BUTTE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 40 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



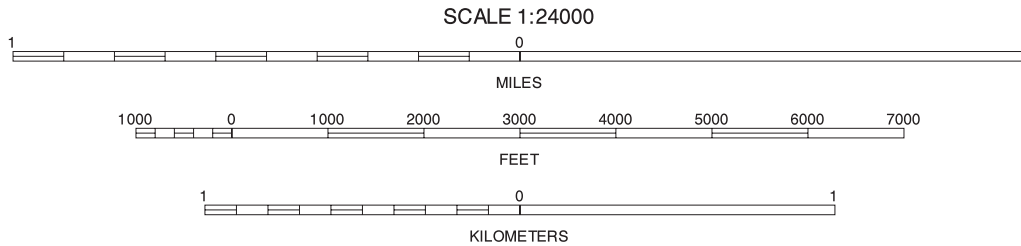
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

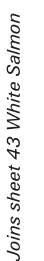


25	26		25 PHANNY HILL
			26 CANOE RIDGE
40			40 GOLGOTHA BUTTE

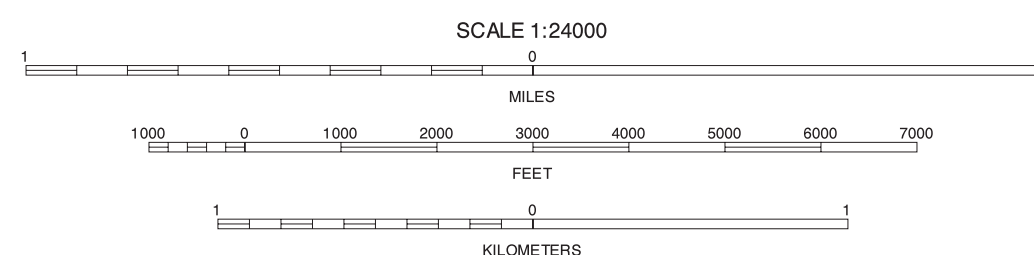
INDEX TO ADJOINING 7.5 MAPS

CROW BUTTE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 41 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



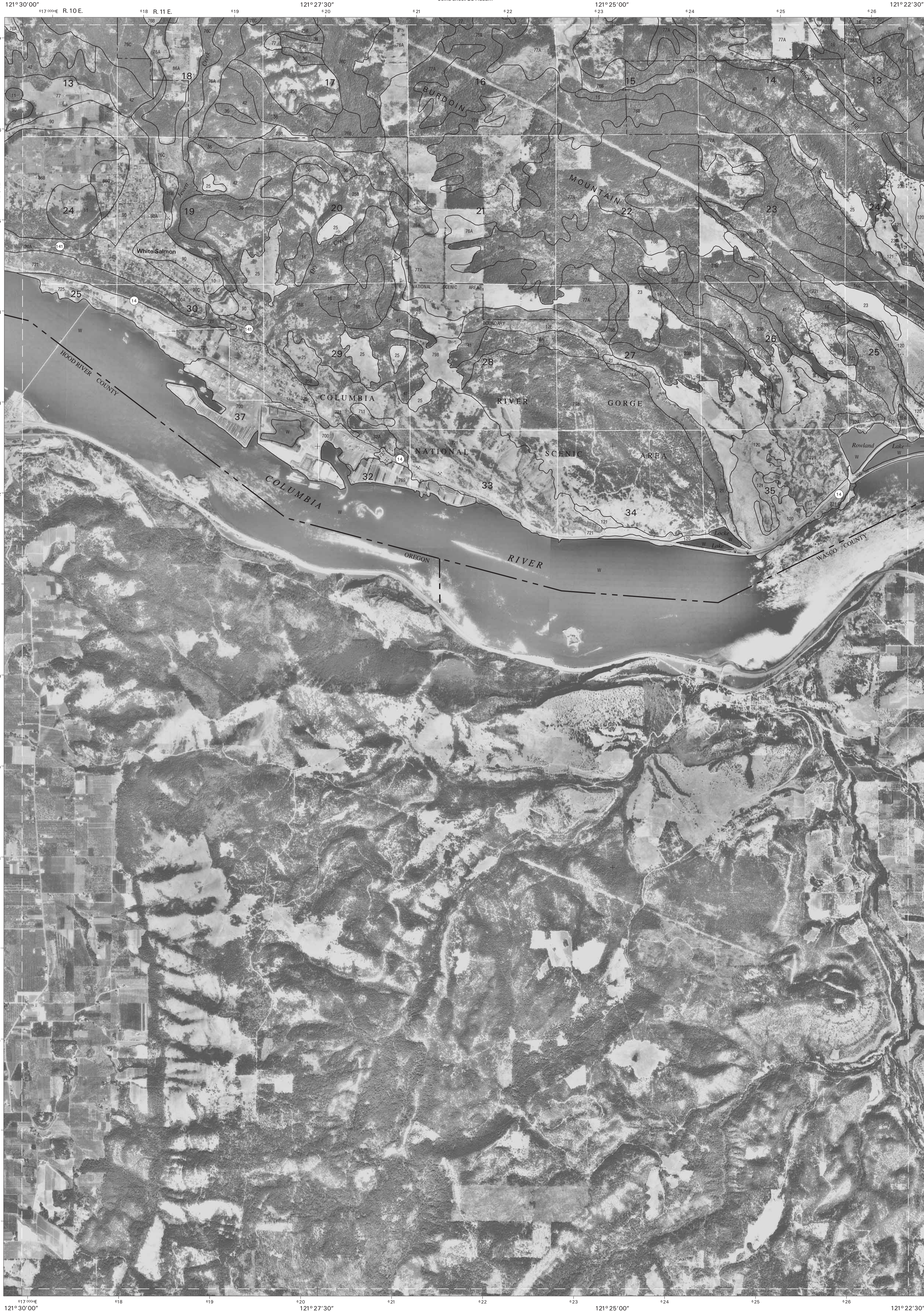
North American Datum of 1983(NAD83). GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 10.
Coordinate grid ticks and land division data, if shown, are
approximately positioned. Digital data are available for
this quadrangle.



	27	28	27 NORTHWESTERN LAKE
			28 HUSUM
		43	43 WHITE SALMON

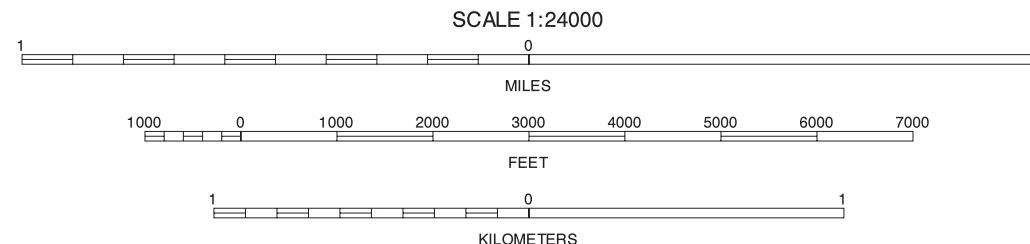
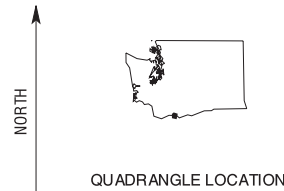
INDEX TO ADJOINING 7.5 MAPS

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

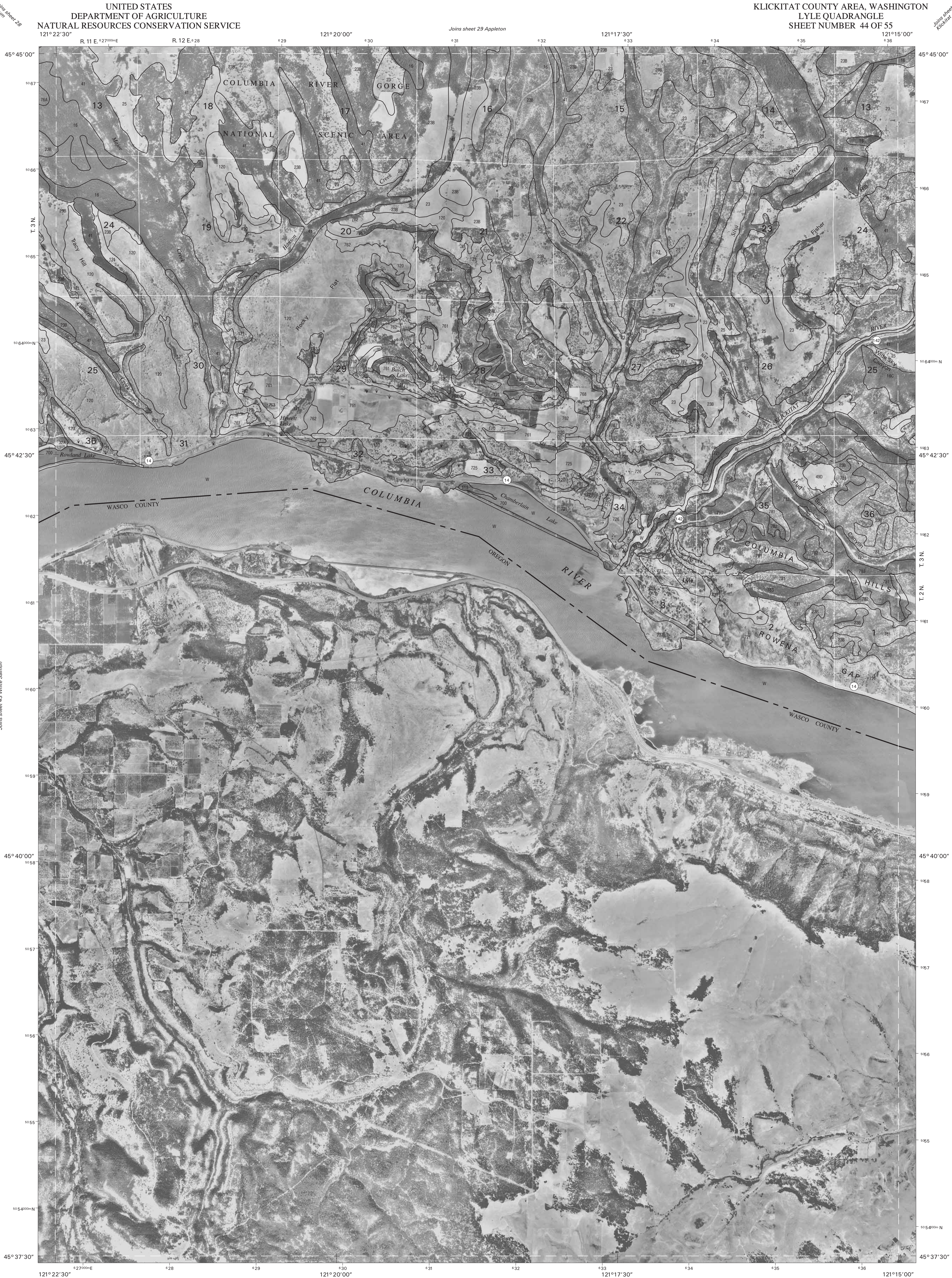


27	28	29
42	43	44

INDEX TO ADJOINING 7.5 MAPS

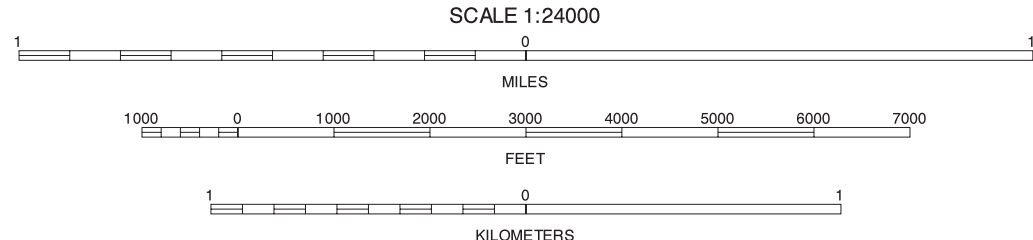
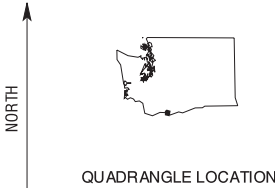
WHITE SALMON, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 43 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

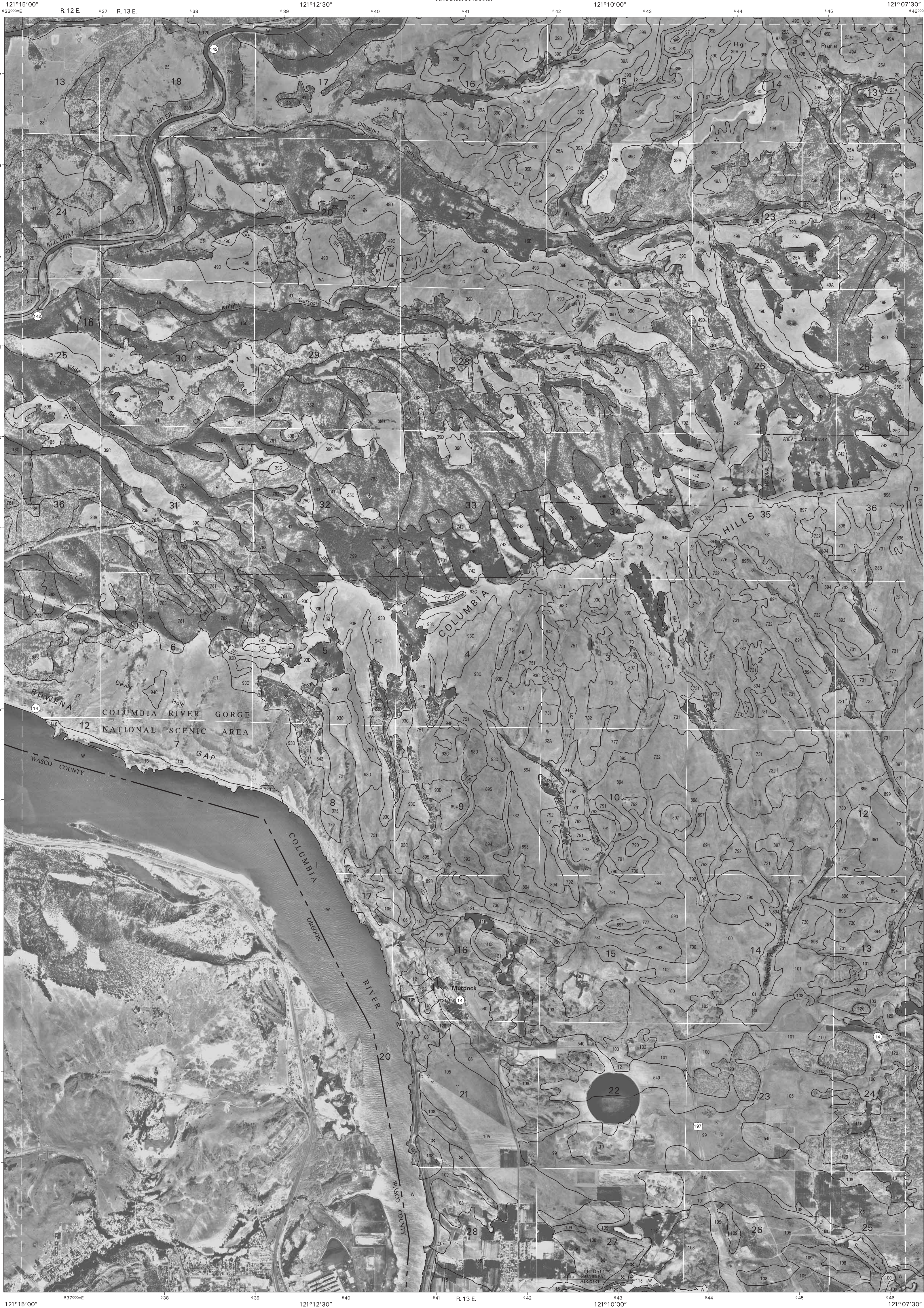


28	29	30
43	44	45
	54	

INDEX TO ADJOINING 7.5 MAPS

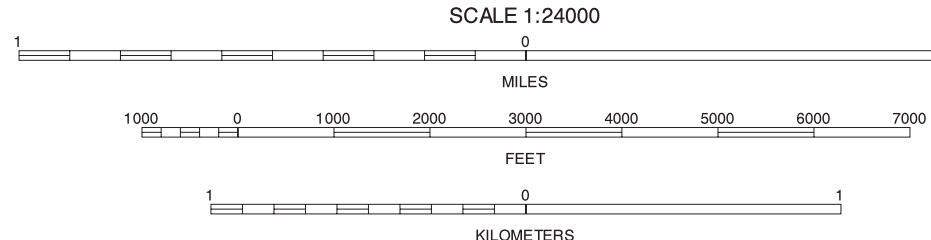
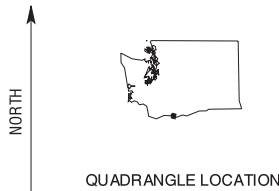
LYLE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 44 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



29	30	31
44		46
	54	55

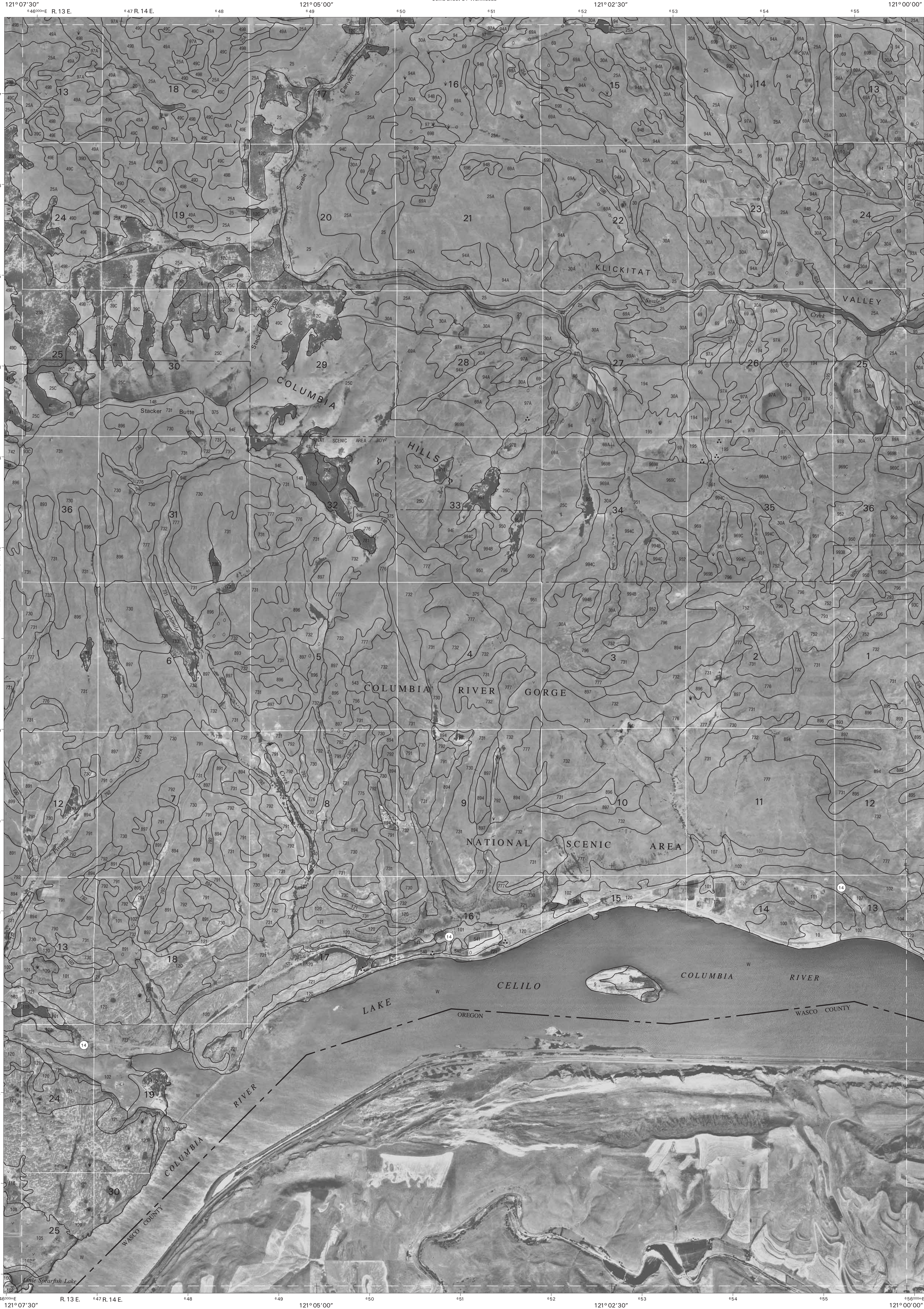
INDEX TO ADJOINING 7.5 MAPS

THE DALLES NORTH, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 45 OF 55

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.

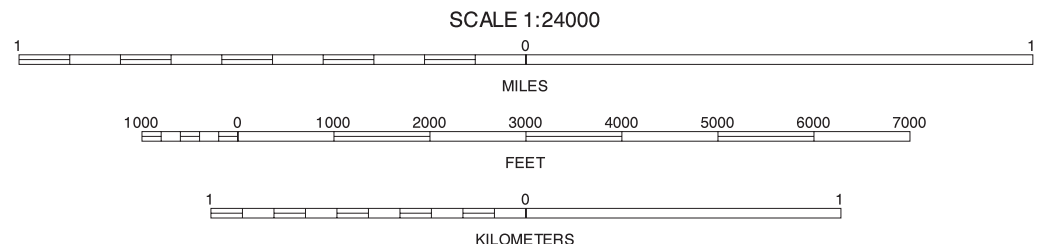
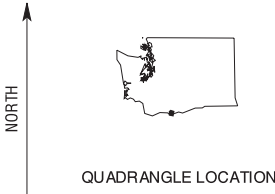
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Klickitat County Area, Washington
Stacker Butte Quadrangle
Sheet Number 46 of 55



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



30	31	32	30	Klickitat
45	46	47	31	Wahkiacus
54	55	56	32	Centerville
			45	The Dalles North
			47	Wahram
			54	The Dalles South
			55	Petersburg

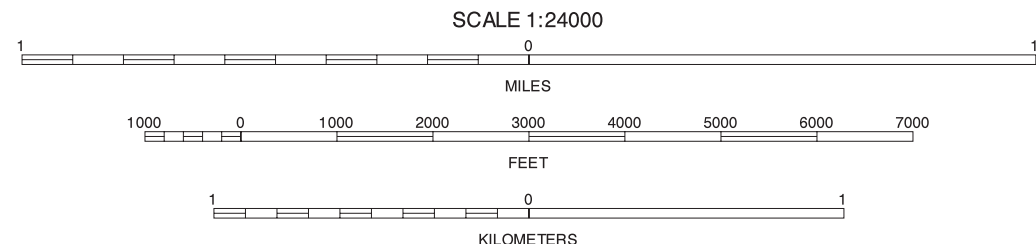
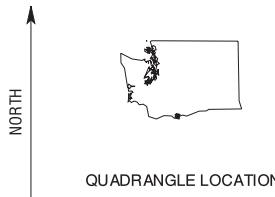
Stacker Butte, Washington
7.5 Minute Series
Sheet Number 46 of 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication or orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



31	32	33
46	47	48
55	56	57

INDEX TO ADJOINING 7.5 MAPS

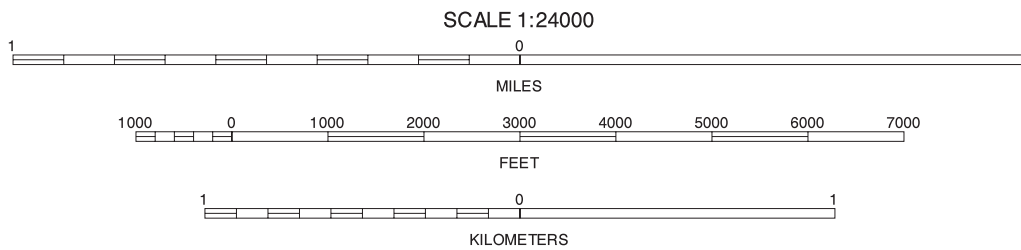
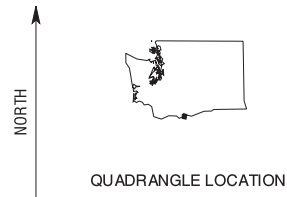
WISHRAM, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 47 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



32	33	34	32 CENTERVILLE
			33 GOLDENDALE
			34 LUNA BUTTE
47		49	47 WISHRAM
			49 RUFUS

INDEX TO ADJOINING 7.5 MAPS

BIGGS JUNCTION, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 48 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

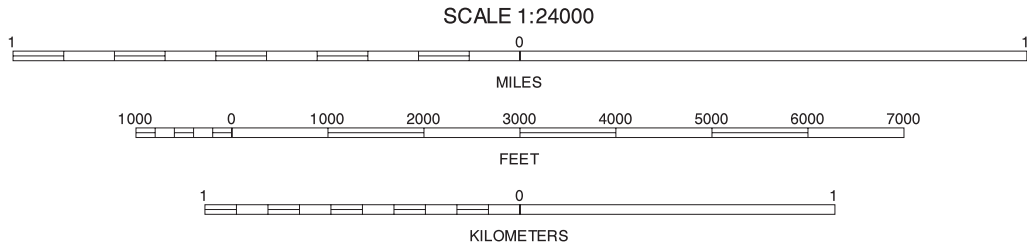
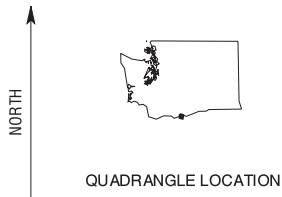
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

KLICKITAT COUNTY AREA, WASHINGTON
RUFUS QUADRANGLE
SHEET NUMBER 49 OF 55



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

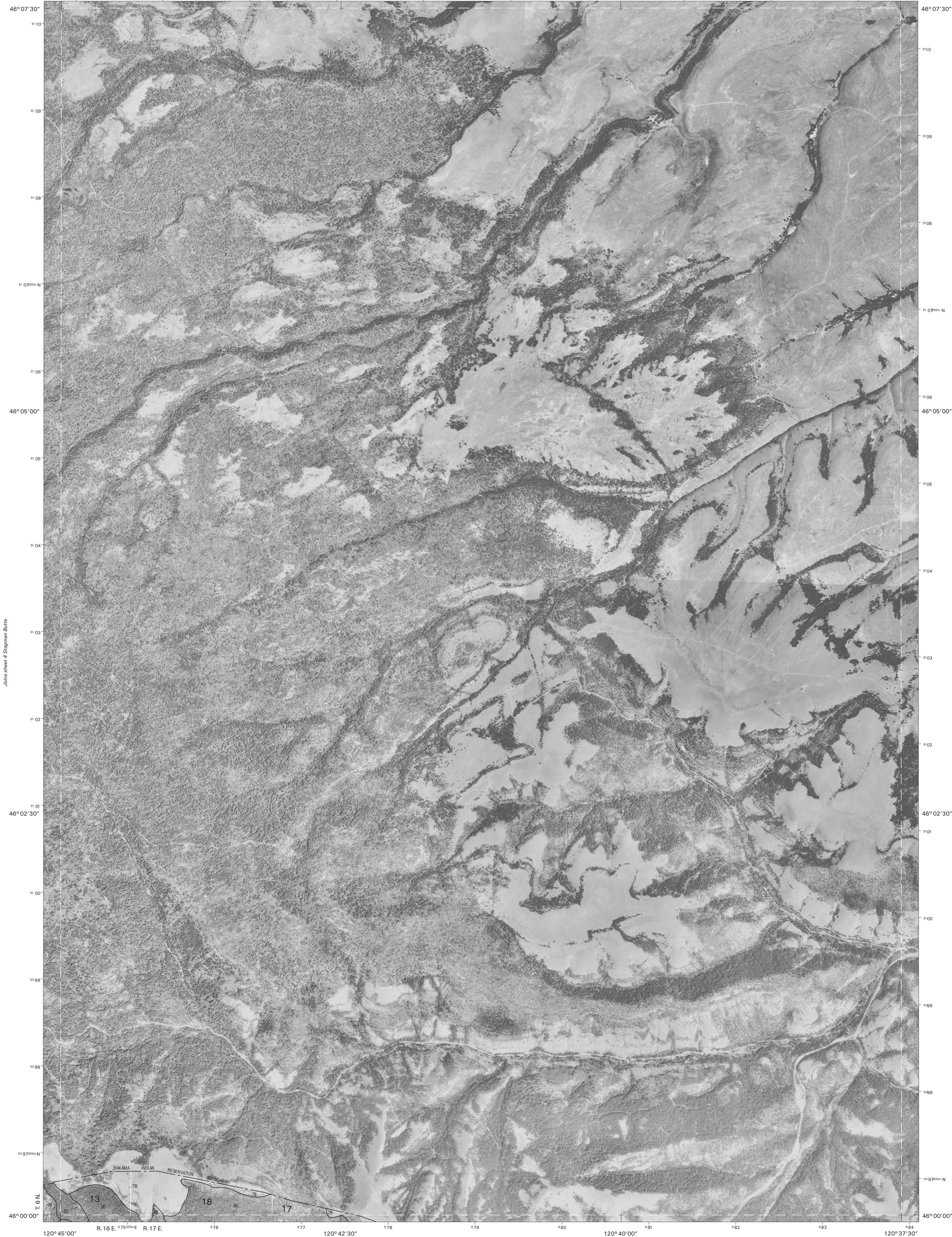


33	34	35
48	49	50

INDEX TO ADJOINING 7.5 MAPS

RUFUS, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 49 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

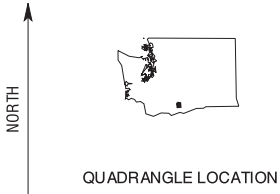


Joins sheet 4 Stagman Butte

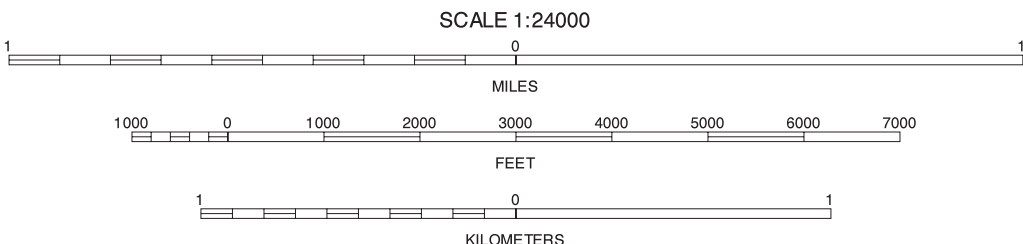
Joins sheet 18
Indian Rock

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



4			4
18	19	20	

INDEX TO ADJOINING 7.5 MAPS

LOGY CREEK SW, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 55

Soil map delineations extending beyond the dashed white quadrangle headline are for reference only and are included on adjacent map sheets.

Joins sheet 20
Lone Pine Butte

Joins sheet 19 Satius Pass



North American Datum of 1983(NAD83). GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 10.
Coordinate grid ticks and land division data, if shown, are
approximately positioned. Digital data are available for
this quadrangle.

INDEX TO ADJOINING 7.5 MAPS

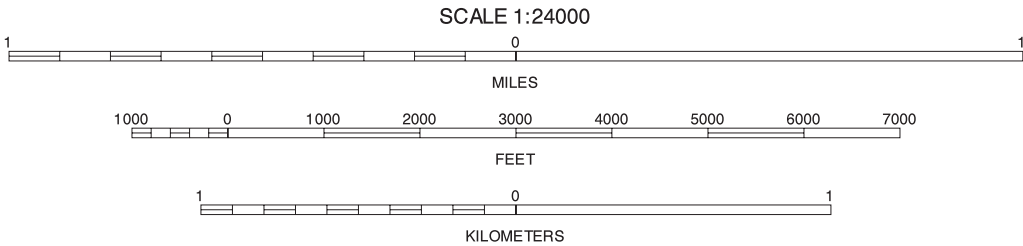
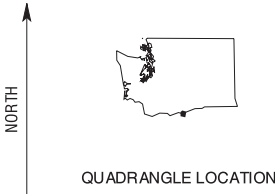
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



36	37	38
36	37	38
51	52	53
51	52	53

GOODNOE HILLS
DOT
WOOD GULCH
SUNDALE NW
ARLINGTON

INDEX TO ADJOINING 7.5 MAPS

SUNDALE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 52 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

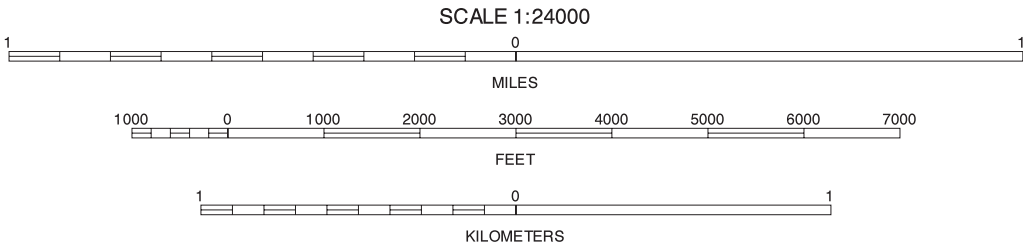
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Klickitat County Area, Washington
ARLINGTON QUADRANGLE
SHEET NUMBER 53 OF 55



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



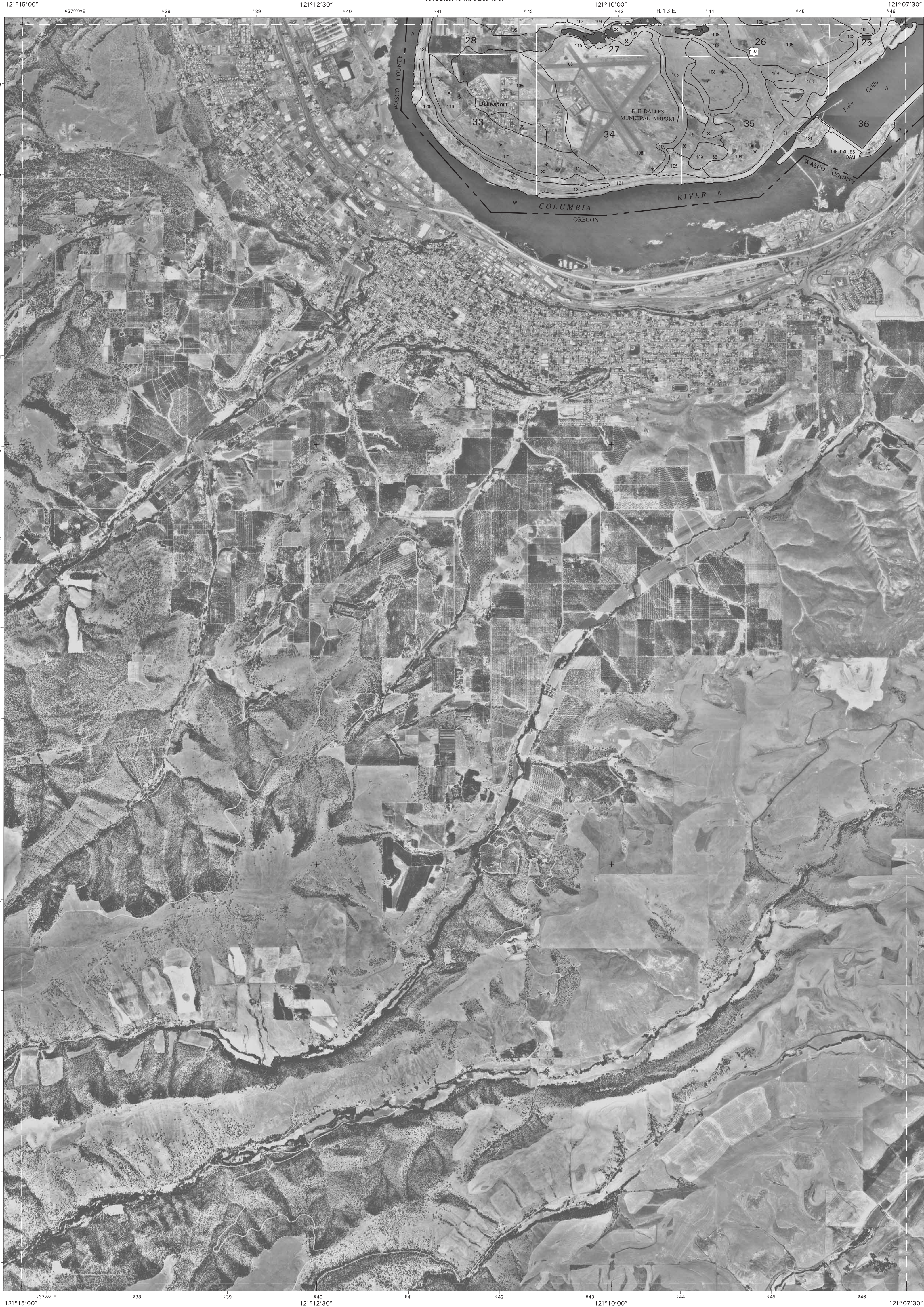
37	38	39
52		

37 DOT
38 WOOD GULCH
39 HEPPNER JUNCTION
52 SUNDALE

INDEX TO ADJOINING 7.5 MAPS

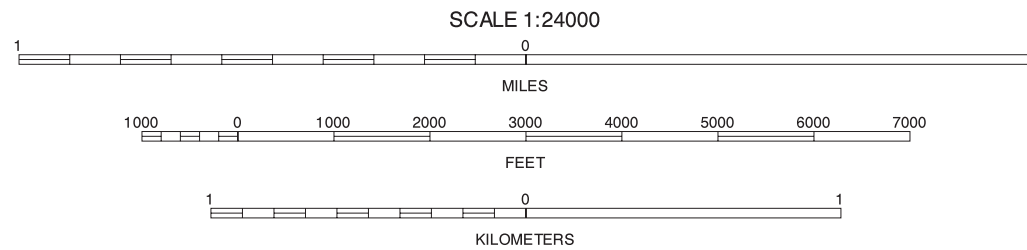
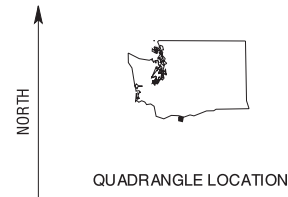
ARLINGTON, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 53 OF 55

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



44	45	46

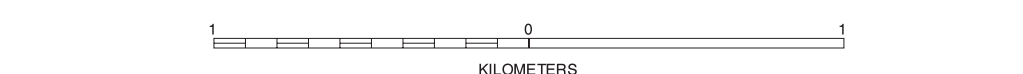
44 LYLE
45 THE DALLES NORTH
46 STACKER BUTTE
55 PETERSBURG

THE DALLES SOUTH, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 54 OF 55

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



North American Datum of 1983(NAD83). GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 10.
Coordinate grid ticks and land division data, if shown, are
approximately positioned. Digital data are available for
this quadrangle.

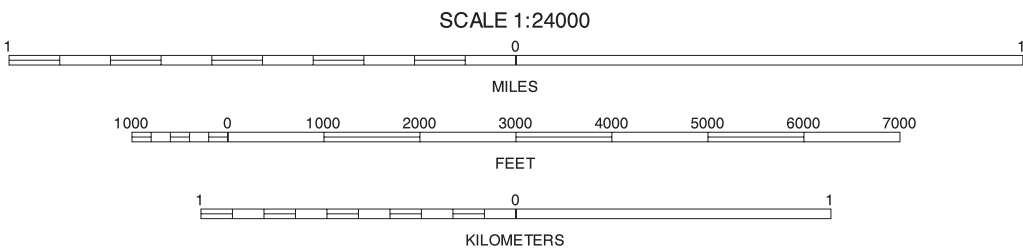
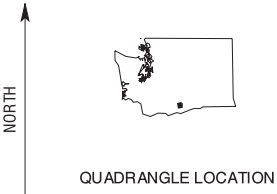
INDEX TO ADJOINING 7.5 MAPS

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



7	POISEL BUTTE SE
20	LOVE PINE BUTTE
21	BICKLETON NW
22	BICKLETON

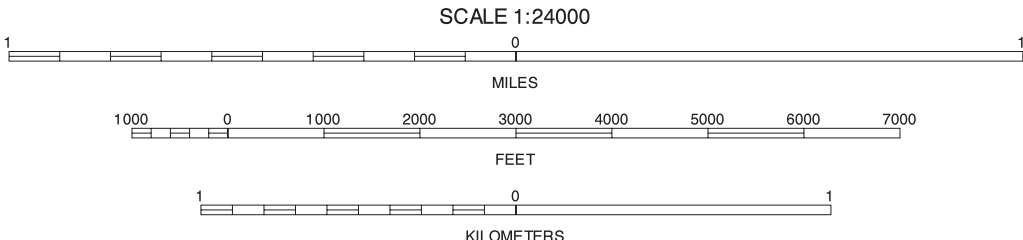
POISEL BUTTE SW, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 55

Soil map delineations extending beyond the dashed white quadrangle heatline are for reference only and are included on adjacent map sheets.



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

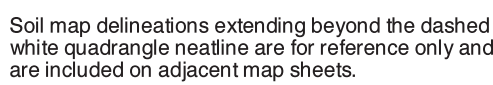
North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



6	8	6 POISEL BUTTE SW
21	22	21 BLUELIGHT NW
23	24	22 BICKLETON NW
25	26	23 CRIDER VALLEY

POISEL BUTTE SE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 55

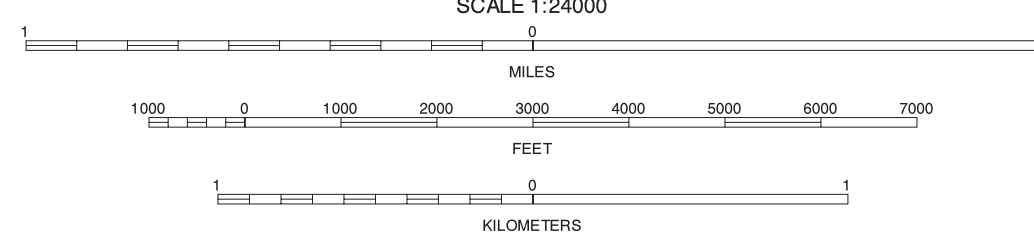
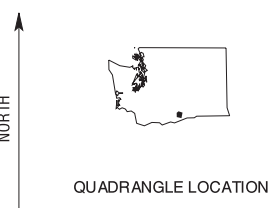
Soil map delineations extending beyond the dashed white quadrangle heattline are for reference only and are included on adjacent map sheets.





This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1996 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



8	10	23	24	25
8 BLUELIGHT	10 PHOSSER SW	23 CRIDER VALLEY	24 DOUTY CANYON	25 PHINNY HILL

TULE PRONG, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 55

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

Soil Survey of Klickitat County Area, Washington

CD-ROM Version December 2009

Welcome! This CD contains information about the soils of Klickitat County Area, Washington. Click on a subject of interest or browse the CD to view the files.

Soil Survey Manuscript

This document contains general information about the survey area, the general and detailed soil map unit descriptions, the taxonomic unit descriptions, and the soil interpretation and soil properties tables.

General Soil Map

The general soil map shows the survey area divided into groups of associated soils called [general soil map units](#). This map is useful for planning the use and management of large areas. Click on the general soil map unit names in the legend to view the map unit descriptions.

Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas. From the Index to Map Sheets, click on any quadrangle to view the soil delineations and map unit symbols in the survey area. For instructions on printing the maps, [click here](#). For instructions on split-screen viewing, [click here](#).